

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Laura Wang Examiner #: 71724 Date: 7/31/03
 Art Unit: 1745 Phone Number 30 84396 Serial Number: 09/942 991
 Mail Box and Bldg/Room Location: DE70 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: See Iron Sheet

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

I) Could you search for a battery having a trimmer
 Compound comprising 3 units of indole & Condensed ring

II) See claim 3 for a Specific Compound

III) Search for a Capacitor comprising the trimmer
 Compound.

Thanks,
 Laura

* Please find back copy of claims

STAFF USE ONLY

Searcher: FS

Searcher Phone #: _____

Searcher Location: _____

Date Searcher Picked Up: _____

Date Completed: 8-5-03

Searcher Prep & Review Time: 5

Clerical Prep Time: _____

Online Time: 55

Type of Search

NA Sequence (#) _____ STN \$ 72.22

AA Sequence (#) _____ Dialog _____

Structure (#) (1) Questel/Orbit _____

Bibliographic (and) Dr. Link _____

Litigation (and) Lexis/Nexis _____

Fulltext _____ Sequence Systems _____

Patent Family _____ WWW/Internet _____

Other _____ Other (specify) _____

Vendors and cost where applicable

=> file reg

FILE 'REGISTRY' ENTERED AT 17:24:37 ON 05 AUG 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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COPYRIGHT (C) 2003 American Chemical Society (ACS)

=> d his

FILE 'HCAPLUS' ENTERED AT 16:57:33 ON 05 AUG 2003

L1 2114 S KUROSAKI ?/AU
L2 8711 S NISHIYAMA ?/AU
L3 71 S KAMISUKI ?/AU
L4 27313 S NAKAGAWA ?/AU
L5 68593 S YOSHIDA ?/AU
L6 61 S NOBUTA ?/AU
L7 4326 S MITANI ?/AU
L8 3 S L1 AND L2 AND L3 AND L4 AND L5 AND L6 AND L7
SEL L8 1-3 RN

FILE 'REGISTRY' ENTERED AT 16:58:11 ON 05 AUG 2003

L9 23 S E1-E23
E C24H12N6O6
L10 16 S E3
L11 1 S L9 AND L10
E 10901.4.1/RID
L12 125 S E3

FILE 'HCA' ENTERED AT 17:05:03 ON 05 AUG 2003

L13 89571 S CAPACIT!R? OR CAPACIT!NC?
L14 184104 S BATTERY OR BATTERIES OR (ELECTROLY? OR ELECTROCHEM? OR
L15 22 S L12
L16 5 S L15 AND (L13 OR L14)
L17 17 S L15 NOT L16

FILE 'REGISTRY' ENTERED AT 17:24:37 ON 05 AUG 2003

=> file hca

FILE 'HCA' ENTERED AT 17:24:51 ON 05 AUG 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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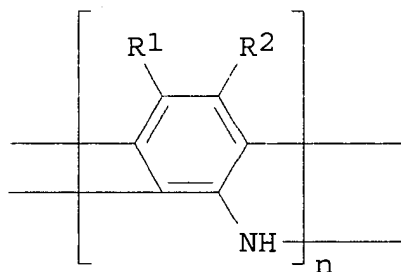
=> d l16 1-5 ibib abs hitstr hitind

L16 ANSWER 1 OF 5 HCA COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 138:404315 HCA
TITLE: Indole compound having supermolecular structure
and secondary battery and

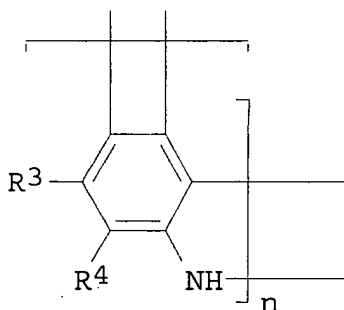
INVENTOR(S): Mori, Mitsuhiro; Naoi, Katsuhiko
 PATENT ASSIGNÉE(S): NEC Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003155288	A2	20030527	JP 2001-354252	20011120
PRIORITY APPLN. INFO.:			JP 2001-354252	20011120
OTHER SOURCE(S):		MARRAT 138:404315		

GI



I



II

AB The indole compd. having a supermol. structure is represented by I and/or II [n .gtoreq. 1 ; R1-4 = H, halo, OH, nitro, sulfone, carboxyl, alkyl, cyano, nitro, amino, aryl, or (substituted) heterocyclic ring which may form condensed ring with benzene ring; when n is .gtoreq.2, terminal groups of indoles have groups selected from R1-4]. Preferably, the indole compd. is an indole trimer deriv. having a layered structure. In the secondary **battery** and the **capacitor**, the electrode material or the electrolyte material contains 1-95 wt.% of the indole compd. having a layered structure. The indole compd. has high and uniform elec. cond. and high structural stability, and the **battery** and the **capacitor** have high energy d., power d., and safety.

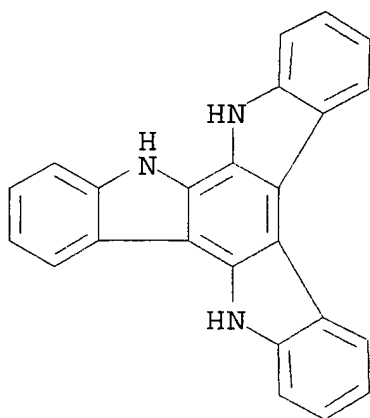
IT 70381-95-2P

(layered; indole compd. having supermol. structure for electrode or electrolyte of secondary **battery** and **capacitor**)

RN 70381-95-2 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro- (9CI) (CA INDEX

NAME)



IC ICM C07D487-14
ICS H01G009-025; H01G009-058; H01M004-02; H01M004-60; H01M004-62;
H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 28, 76

ST indole compd supermol structure elec cond; **battery**
capacitor indole trimer layered structure

IT **Battery** electrodes
 Battery electrolytes
 Capacitor electrodes
Electric conductors
Electrolytic **capacitors**
 (indole compd. having supermol. structure for electrode or
 electrolyte of secondary **battery** and **capacitor**
)

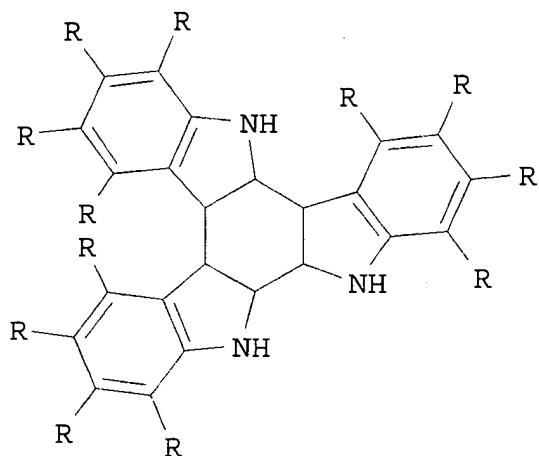
IT 120-72-9, Indole, reactions
 (indole compd. having supermol. structure for electrode or
 electrolyte of secondary **battery** and **capacitor**
)

IT 70381-95-2P
 (layered; indole compd. having supermol. structure for electrode
 or electrolyte of secondary **battery** and
 capacitor)

L16 ANSWER 2 OF 5 HCA COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 138:388133 HCA
TITLE: **Electrochemical cell** which
 uses indole compound
INVENTOR(S): Mitani, Katsuya; Nishiyama, Toshihiko; Kamito,
 Hiroyuki; Harada, Manabu; Kurosaki, Masato;
 Nakagawa, Yuji; Shinoda, Tomoki; Kaneko, Shinako
PATENT ASSIGNEE(S): NEC Tokin Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
DOCUMENT TYPE: Patent

LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003142099	A2	20030516	JP 2001-337837	20011102
US 2003129490	A1	20030710	US 2002-286692	20021101
PRIORITY APPLN. INFO.: GI			JP 2001-337837	A 20011102



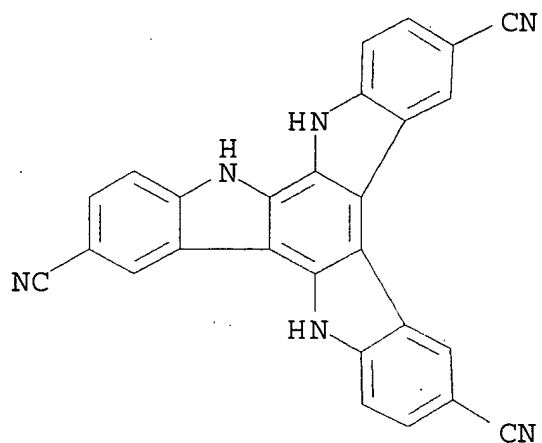
I

AB The title cell, esp. for **secondary batteries** and **capacitors**, has an electrode active mass, contg. a mixt. of a trimer I bonded by position 2 and 3, and an indole (deriv.) tetramer; and uses a proton as charge carrier.

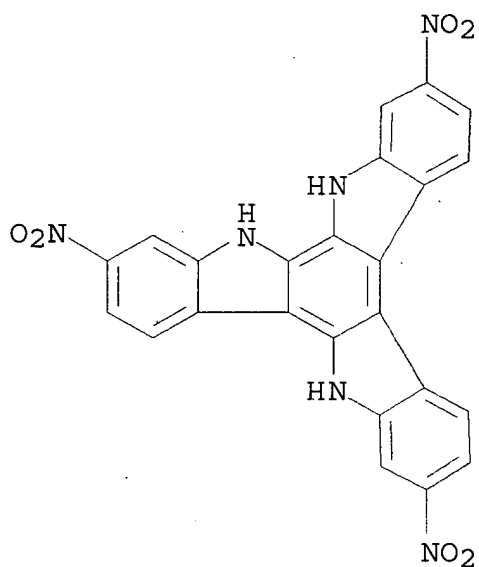
IT **164671-61-8 403694-95-1**
 (electrodes contg. indole trimer compds. and tetramers for secondary **batteries** and **capacitors**)

RN 164671-61-8 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarbonitrile,
 6,11-dihydro- (9CI) (CA INDEX NAME)



RN 403694-95-1 HCA
 CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro-3,8,13-trinitro-
 (9CI) (CA INDEX NAME)

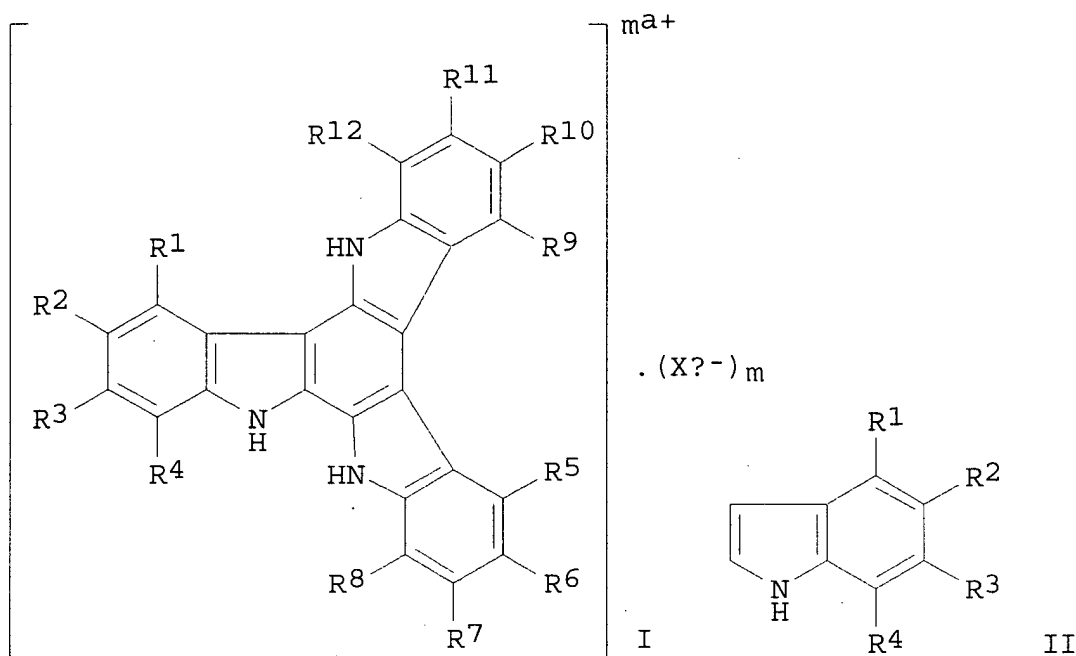


IC ICM H01M004-60
 ICS H01G009-038; H01G009-058; H01M004-02; H01M010-36
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 76
 ST secondary **battery capacitor** electrode indol
 trimer tetramer
 IT **Capacitor** electrodes
 (electrodes contg. indole trimer compds. and tetramers for
 secondary **batteries** and **capacitors**)
 IT **Battery** electrodes
 (electrodes contg. indole trimers and tetramers for secondary

batteries and capacitors)
IT 7664-93-9, Sulfuric acid, uses
(dild., electrolyte; electrodes contg. indole trimer compds. and
tetramers for secondary **batteries** and
capacitors)
IT 164671-61-8 220310-61-2 403694-95-1
503269-69-0 527682-27-5 527682-32-2
(electrodes contg. indole trimer compds. and tetramers for
secondary **batteries** and **capacitors**)
IT 76-05-1, uses 108-32-7, Propylene carbonate 429-06-1,
Tetraethylammonium tetrafluoroborate
(electrolyte; electrodes contg. indole trimer compds. and
tetramers for secondary **batteries** and
capacitors)

L16 ANSWER 3 OF 5 HCA COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 136:340667 HCA
TITLE: Method for producing trimer of indole derivative
by oxidative cyclotrimerization of indole
derivative, and trimer of indole derivative and
laminated structure thereof
INVENTOR(S): Maeda, Shinichi; Momose, Fumino; Saitoh,
Yoshikazu; Saitoh, Takashi
PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd., Japan
SOURCE: PCT Int. Appl., 107 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002032903	A1	20020425	WO 2001-JP8442	20010927
W: CN, JP, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
EP 1327632	A1	20030716	EP 2001-972535	20010927
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
PRIORITY APPLN. INFO.:			JP 2000-317045	A 20001017
			JP 2001-159604	A 20010528
			WO 2001-JP8442	W 20010927
OTHER SOURCE(S):			CASREACT 136:340667; MARPAT 136:340667	
GI				



AB A method for producing a trimer of an indole deriv. [I; R1 - R12 = H, C1-24 linear or branched alkyl or alkoxy, C2-24 linear or branched acyl, CHO, CO2H or C2-24 linear or branched carboxylic acid ester, SO3H or C1-24 linear or branched sulfonic acid ester, cyano, OH, NH2, amido, halo; Xa- = at least one anion selected from Cl-, Br-, I-, F-, NO3-, SO42-, HSO4-, PO43-, BF3-, ClO4-, SCN-, AcO-, MeCH2CO2-, MeSO3-, p-MeC6H4SO3-, CF3CO2-, and CF3SO3-; a = ion valency of 1-3 integer; m = 0-0.5] comprises oxidizing the indole deriv. (II; R1 - R3 = groups listed in R1 - R12) by the use of an oxidizing agent in a liq. reaction mixt. contg. an org. solvent. The method allows the mass prodn. of the trimer of the indole deriv. with high purity and the novel trimer of the indole deriv. has high electrocond., exhibits high oxidn.-redn. potential and high oxidn.-redn. capacity, and exhibits good redox cycle characteristics. A compn. contg. the trimer I as the main component is useful for antistatics, condenser, **battery**, EMI shield, chem. sensor, display element, org. electroluminescent material, nonlinear material, rust preventive, adhesive, fiber, antistatic coating, plating primer, conductive primer for electrostatic coating, elec. anticorrosion, or electrodeposition (no data). Thus, a soln. of 16.2 g FeCl3 in 5.4 g H2O and 40 mL MeCN was added dropwise to a soln. of 1.42 g indole-5-carbonitrile in 10 mL MeCN over 30 min and stirred at 60.degree. for 10 h to give 86% 6,11-5H-diindolo[2,3-a;2',3'-c]carbazole-2,9,14-tricarbonitrile (III) having elemental anal. of (C9.00H4.03N1.97Cl0.10)3, elec. cond. of 0.50 S/cm, and interlayer distance of 0.4 nm according to x-ray crystallog. III and 6,11-dihydro-3,8,13-trinitro-5H-

diindolo[2,3-a;2',3'-c]carbazole showed redox potential of 1.00 and 1.10 V, resp., a total redn. capacity of 330 and 320 C/g, resp., and redox cycle characteristic [redn. capacity after 10,000 redox cycles compared to that of the first cycle (set for 100)] of 85 and 97%, resp.

IT 417708-84-0P 417708-86-2P 417708-88-4P
417708-90-8P 417708-93-1P 417708-94-2P
417708-95-3P 418764-77-9P 418764-80-4P
418764-84-8P 418764-87-1P 418764-90-6P
418764-93-9DP, reaction product with polyvinylsulfonic acid
418764-93-9P 418764-96-2P 418764-99-5P
418765-02-3P 418765-05-6P 418765-08-9P
418765-11-4P 418765-14-7P 418765-17-0P
418765-20-5P 418765-23-8P 418765-26-1P
418765-29-4P 418765-32-9P 418765-35-2P
418765-38-5P 418765-41-0P 418765-44-3P
418765-47-6P 418765-50-1P 418765-53-4P
418765-56-7P 418765-59-0P
(prepn. of trimers of indole derivs. (5H-diindolo[2,3-a;2',3'-c]carbazole derivs.) with high redox potentials by oxidative cyclotrimerization of indole derivs. in presence of oxidizing agents and laminated structure thereof)

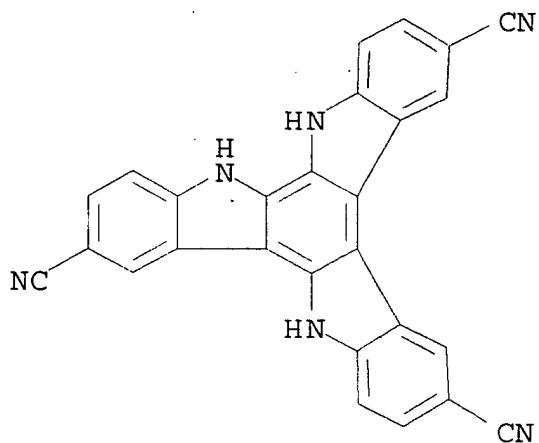
RN 417708-84-0 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarbonitrile,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-
tricarbonitrile (3:7) (9CI) (CA INDEX NAME)

CM 1

CRN 417708-83-9

CMF C27 H12 N6 . Cl

CCI RIS

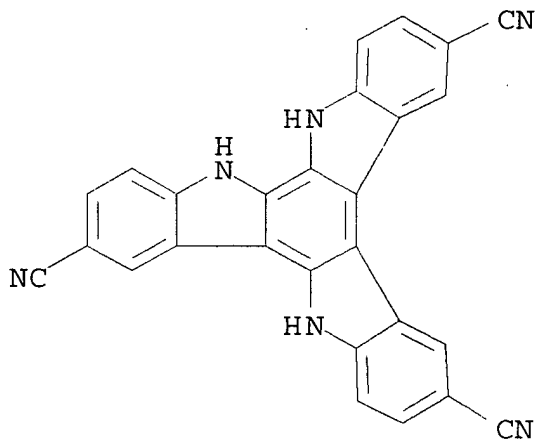


● Cl⁻

CM 2

CRN 164671-61-8

CMF C27 H12 N6



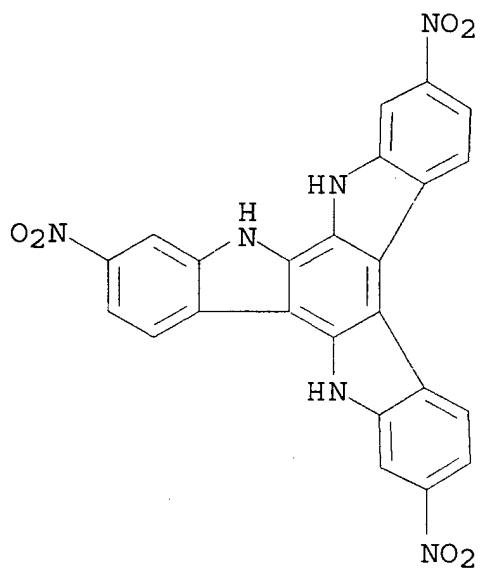
RN 417708-86-2 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro-3,8,13-trinitro-, radical ion(1+), chloride, compd. with 6,11-dihydro-3,8,13-trinitro-5H-diindolo[2,3-a:2',3'-c]carbazole (9:11) (9CI) (CA INDEX NAME)

CM 1

CRN 417708-85-1

CMF C24 H12 N6 O6 . Cl
CCI RIS

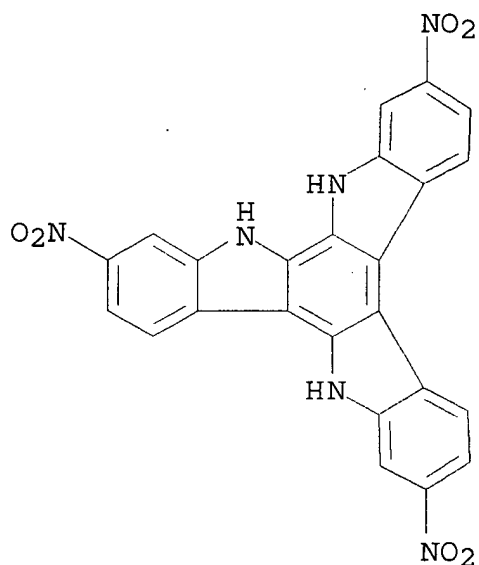


● Cl⁻

CM 2

CRN 403694-95-1

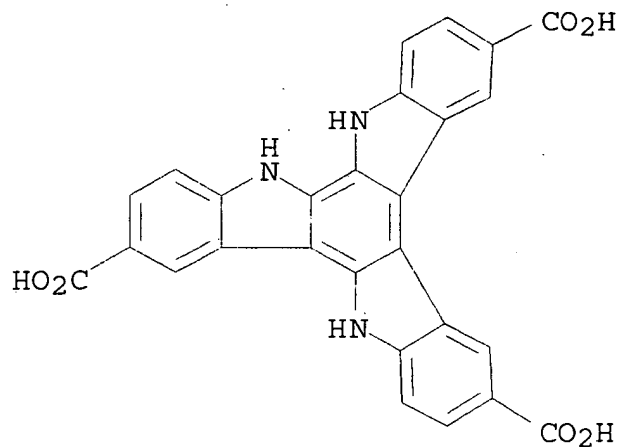
CMF C24 H12 N6 O6



RN 417708-88-4 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarboxylic acid,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-
tricarboxylic acid (33:67) (9CI) (CA INDEX NAME)

CM 1

CRN 417708-87-3
CMF C27 H15 N3 O6 . Cl
CCI RIS

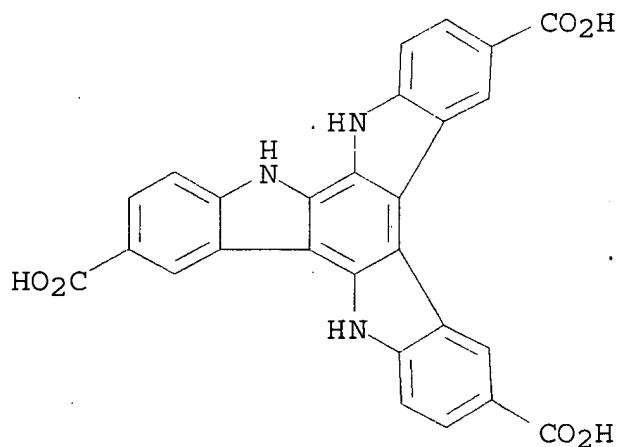


● Cl⁻

CM 2

CRN 158613-71-9

CMF C27 H15 N3 O6



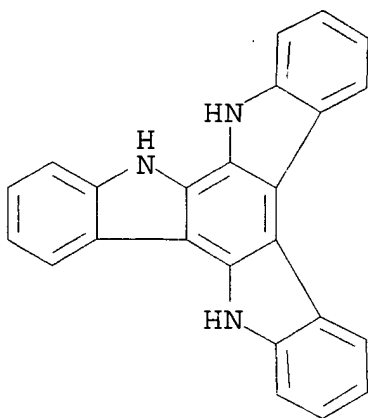
RN 417708-90-8 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro-, radical ion(1+), sulfate, compd. with 6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole (42:21:58) (9CI) (CA INDEX NAME)

CM 1

CRN 70381-95-2

CMF C24 H15 N3



CM 2

CRN 417708-89-5

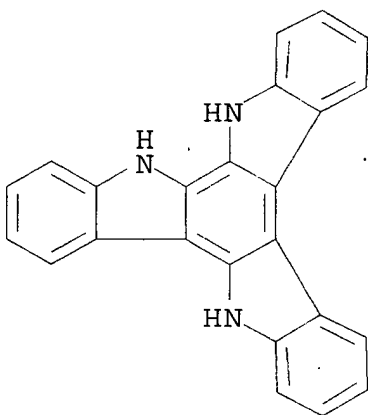
CMF C24 H15 N3 . 1/2 O4 S

CM 3

CRN 182440-60-4

CMF C24 H15 N3

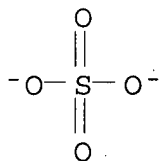
CCI RIS



CM 4

CRN 14808-79-8

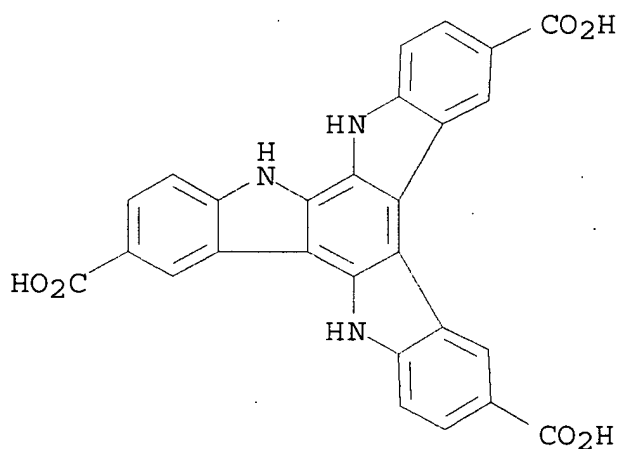
CMF O4 S



RN 417708-93-1 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarboxylic acid,
6,11-dihydro-, radical ion(1+), chloride sulfate, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-
tricarboxylic acid (81:9:36:19) (9CI) (CA INDEX NAME)

CM 1

CRN 158613-71-9
CMF C27 H15 N3 O6

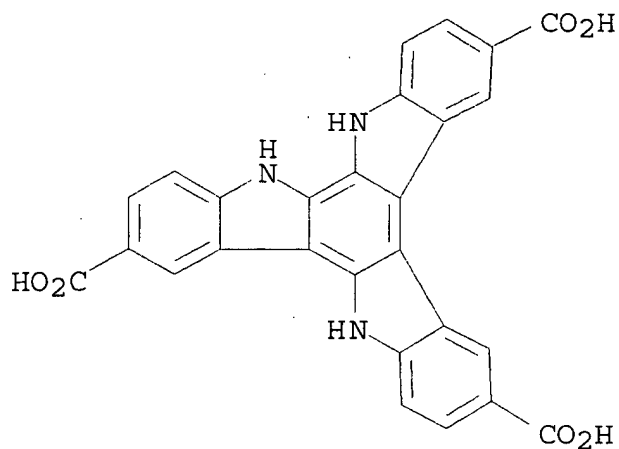


CM 2

CRN 417708-92-0
CMF C27 H15 N3 O6 . 1/9 Cl . 4/9 O4 S

CM 3

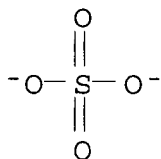
CRN 417708-91-9
CMF C27 H15 N3 O6
CCI RIS



CM 4

CRN 14808-79-8

CMF O4 S



RN 417708-94-2 HCA

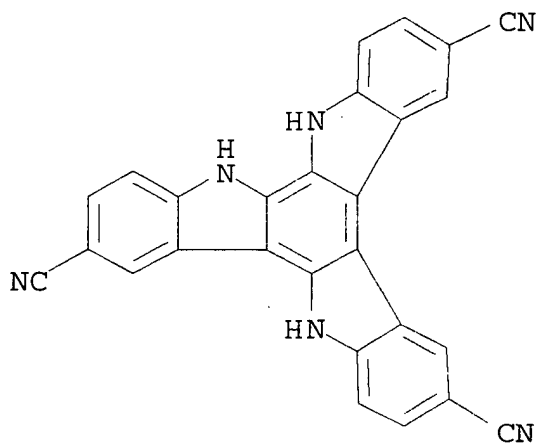
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarbonitrile,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-
tricarbonitrile (33:67) (9CI) (CA INDEX NAME)

CM 1

CRN 417708-83-9

CMF C27 H12 N6 . Cl

CCI RIS

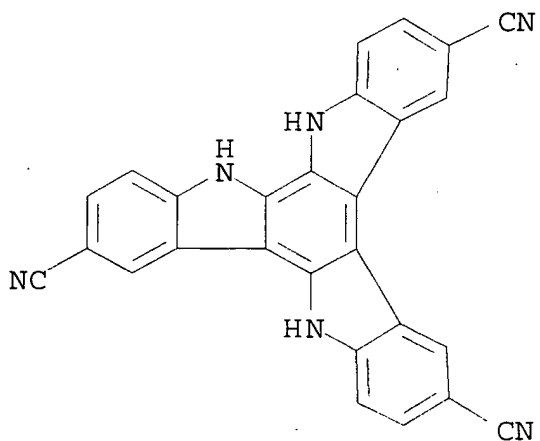


● Cl⁻

CM 2

CRN 164671-61-8

CMF C27 H12 N6

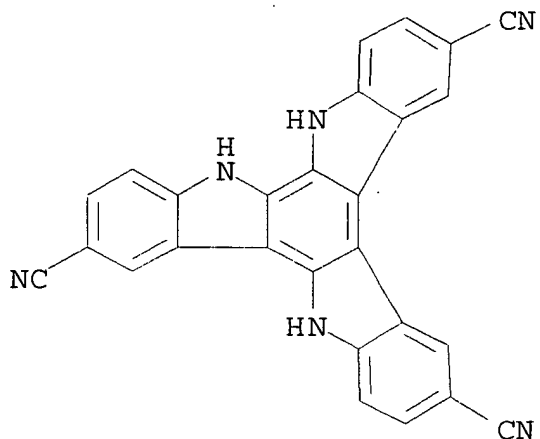


RN 417708-95-3 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarbonitrile,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-
tricarbonitrile (21:79) (9CI) (CA INDEX NAME)

CM 1

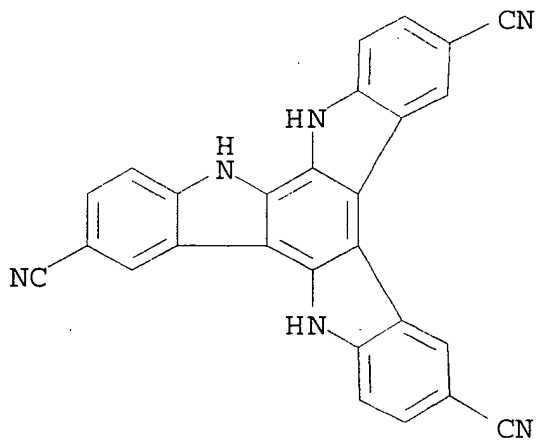
CRN 417708-83-9
CMF C27 H12 N6 . Cl
CCI RIS



● Cl⁻

CM 2

CRN 164671-61-8
CMF C27 H12 N6

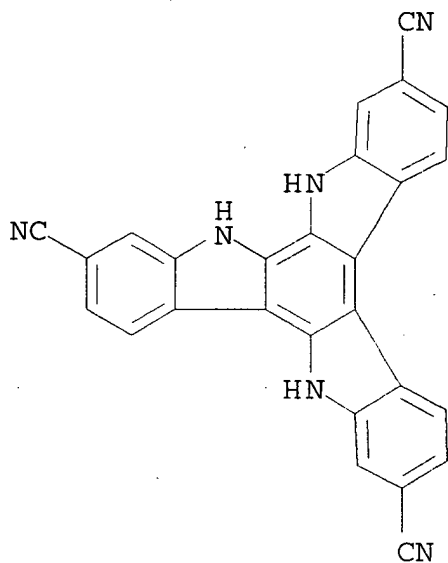


RN 418764-77-9 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-3,8,13-tricarbonitrile,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-3,8,13-
tricarbonitrile (9:11) (9CI) (CA INDEX NAME)

CM 1

CRN 418764-76-8

CMF C27 H12 N6

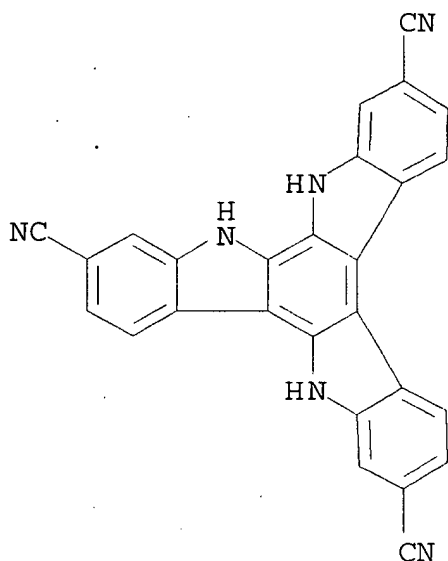


CM 2

CRN 418764-75-7

CMF C27 H12 N6 . Cl

CCI RIS

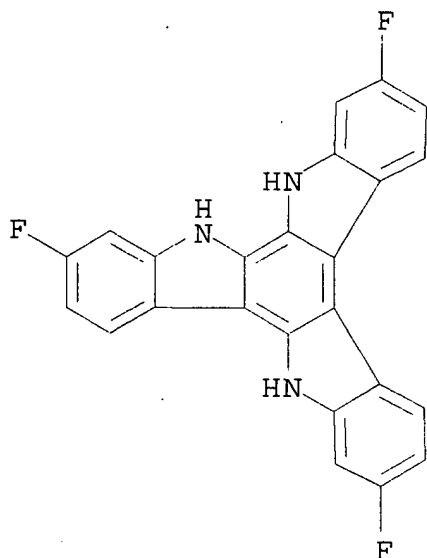


● Cl⁻

RN 418764-80-4 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 3,8,13-trifluoro-6,11-dihydro-, radical ion(1+), chloride, compd. with 3,8,13-trifluoro-6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole (12:13) (9CI) (CA INDEX NAME).

CM 1

CRN 418764-79-1
CMF C24 H12 F3 N3

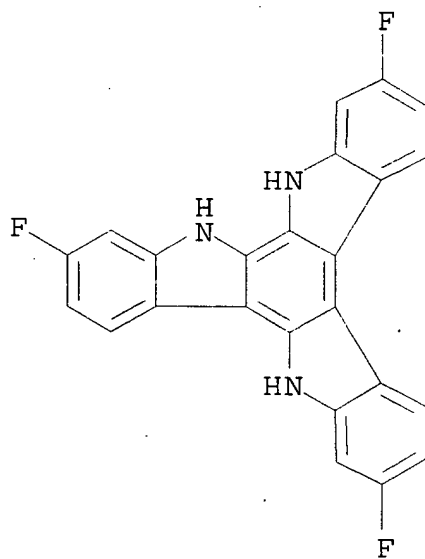


CM 2

CRN 418764-78-0

CMF C24 H12 F3 N3 . Cl

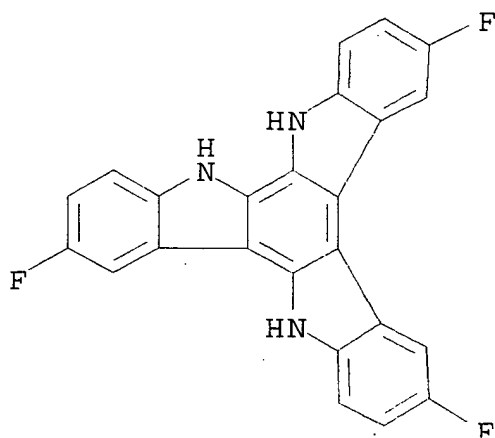
CCI RIS

Cl⁻

RN 418764-84-8 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 2,9,14-trifluoro-6,11-dihydro-,
radical ion(1+), chloride, compd. with 2,9,14-trifluoro-6,11-dihydro-
5H-diindolo[2,3-a:2',3'-c]carbazole (3:7) (9CI) (CA INDEX NAME)

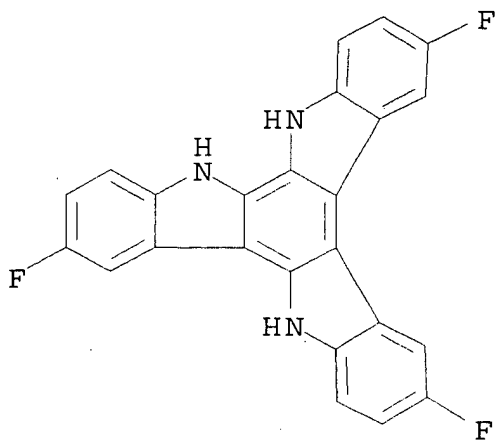
CM 1

CRN 418764-83-7
CMF C24 H12 F3 N3



CM 2

CRN 418764-82-6
CMF C24 H12 F3 N3 . Cl
CCI RIS

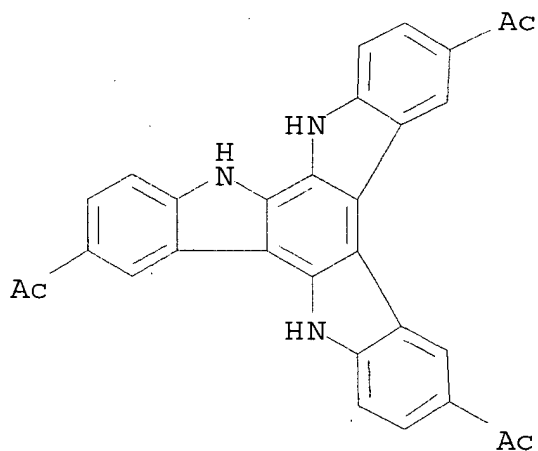


● Cl⁻

RN 418764-87-1 HCA
CN Ethanone, 1,1',1''-(6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-triyl)tris-, radical ion(1+), chloride, compd. with 1,1',1''-(6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-triyl)tris[ethanone] (21:29) (9CI) (CA INDEX NAME)

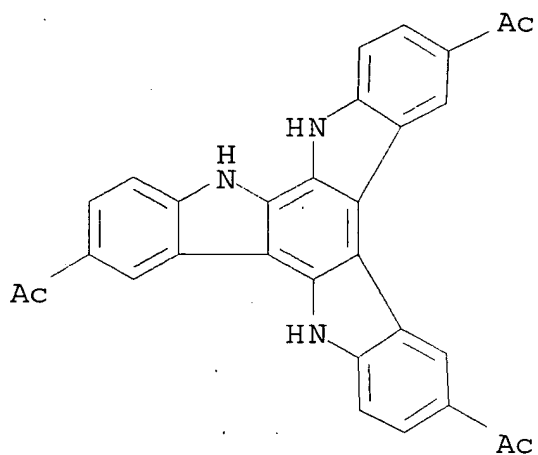
CM 1

CRN 418764-86-0
CMF C30 H21 N3 O3



CM 2

CRN 418764-85-9
CMF C30 H21 N3 O3 . Cl
CCI RIS

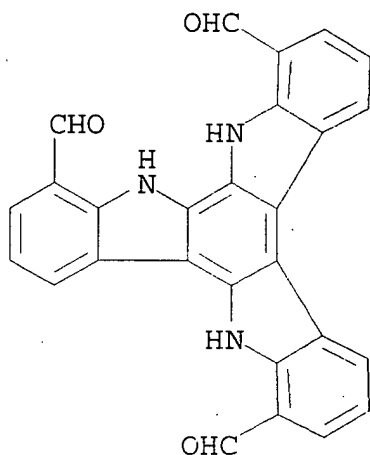


CM 2

CRN 418764-88-2

CMF C27 H15 N3 O3 . Cl

CCI RIS

● Cl⁻

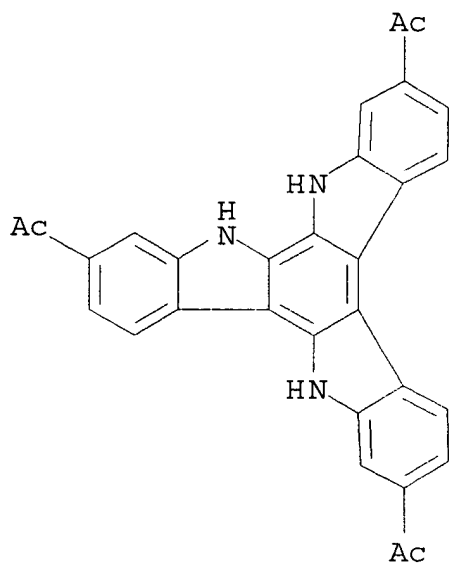
RN 418764-93-9 HCA

CN Ethanone, 1,1',1''-(6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-3,8,13-triyl)tris-, radical ion(1+), chloride, compd. with 1,1',1''-(6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-3,8,13-triyl)tris[ethanone] (3:7) (9CI) (CA INDEX NAME)

CM 1

CRN 418764-92-8

CMF C30 H21 N3 O3

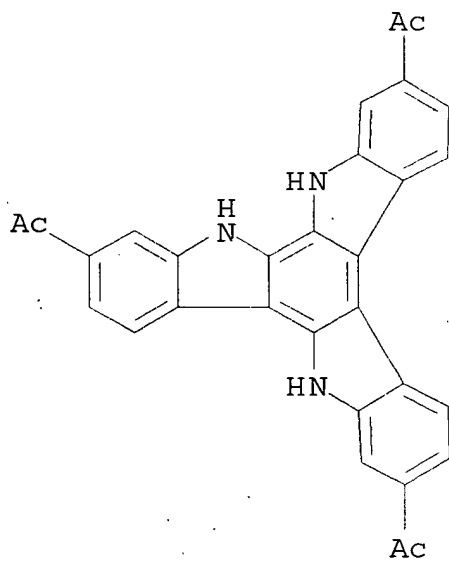


CM 2

CRN 418764-91-7

CMF C30 H21 N3 O3 . Cl

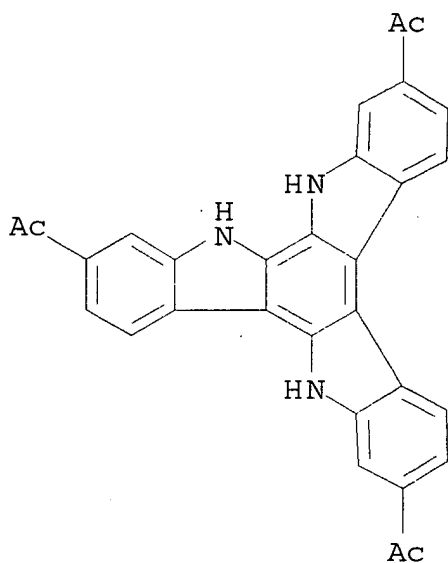
CCI RIS

Cl⁻

RN 418764-93-9 HCA
CN Ethanone, 1,1',1''-(6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-3,8,13-triyl)tris-, radical ion(1+), chloride, compd. with 1,1',1''-(6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-3,8,13-triyl)tris[ethanone] (3:7) (9CI) (CA INDEX NAME)

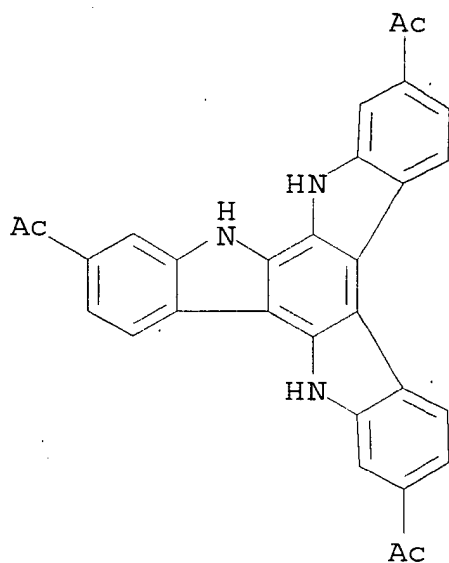
CM 1

CRN 418764-92-8
CMF C30 H21 N3 O3



CM 2

CRN 418764-91-7
CMF C30 H21 N3 O3 . Cl
CCI RIS

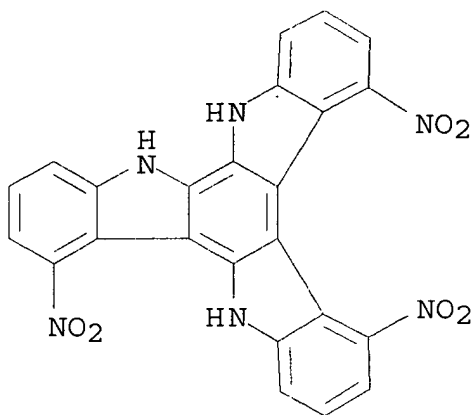


● Cl⁻

RN 418764-96-2 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro-1,10,15-trinitro-, radical ion(1+), chloride, compd. with 6,11-dihydro-1,10,15-trinitro-5H-diindolo[2,3-a:2',3'-c]carbazole (12:13) (9CI) (CA INDEX NAME)

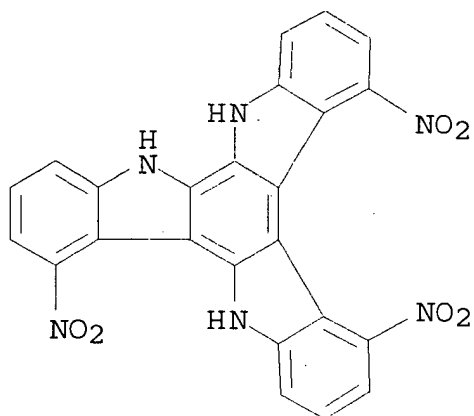
CM 1

CRN 418764-95-1
CMF C24 H12 N6 O6



CM 2

CRN 418764-94-0
CMF C24 H12 N6 O6 . Cl
CCI RIS

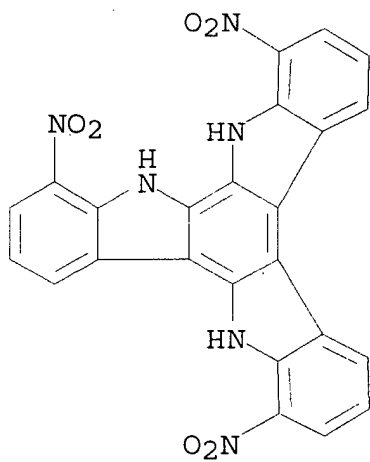


● Cl⁻

RN 418764-99-5 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro-4,7,12-trinitro-, radical ion(1+), chloride, compd. with 6,11-dihydro-4,7,12-trinitro-5H-diindolo[2,3-a:2',3'-c]carbazole (9:16) (9CI) (CA INDEX NAME)

CM 1

CRN 418764-98-4
CMF C24 H12 N6 O6

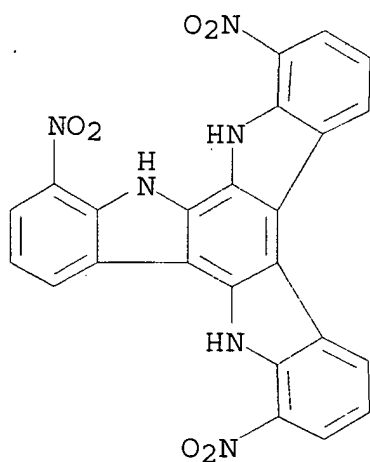


CM 2

CRN 418764-97-3

CMF C24 H12 N6 O6 . Cl

CCI RIS

● Cl⁻

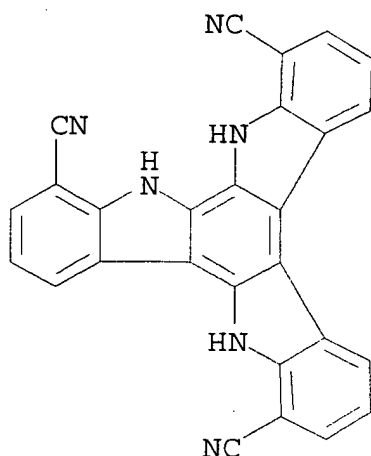
RN 418765-02-3 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-4,7,12-tricarbonitrile,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-4,7,12-
tricarbonitrile (33:67) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-01-2

CMF C27 H12 N6

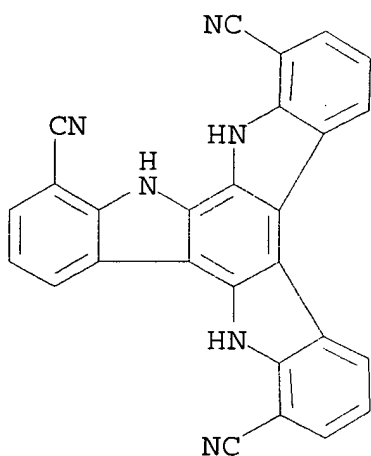


CM 2

CRN 418765-00-1

CMF' C27 H12 N6 . Cl

CCI RIS

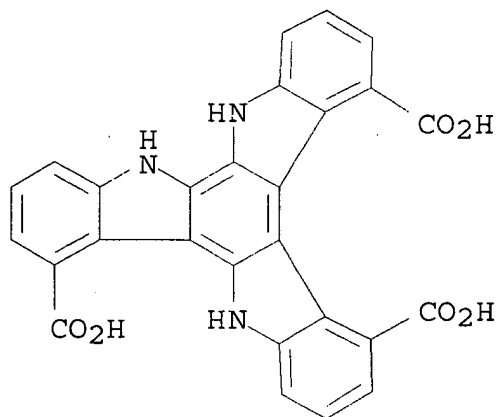
● Cl⁻

RN 418765-05-6 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-1,10,15-tricarboxylic acid,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-1,10,15-
tricarboxylic acid (39:61) (9CI) (CA INDEX NAME)

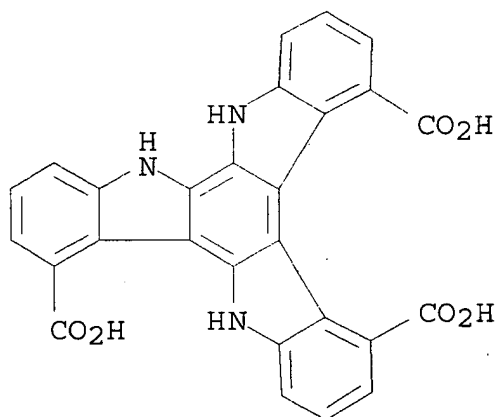
CM 1

CRN 418765-04-5
CMF C27 H15 N3 O6



CM 2

CRN 418765-03-4
CMF C27 H15 N3 O6 . Cl
CCI RIS



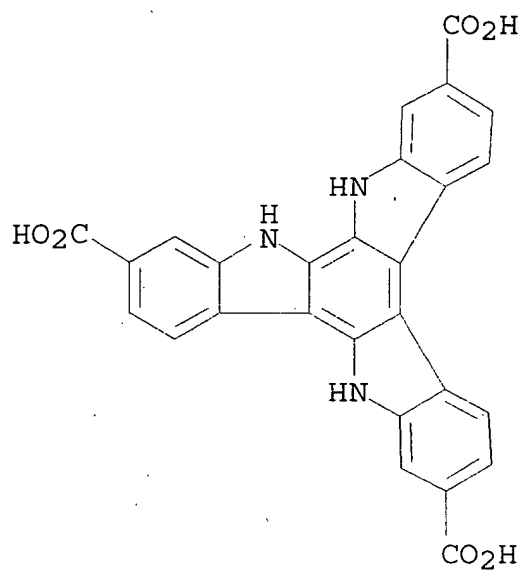
● Cl⁻

RN 418765-08-9 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-3,8,13-tricarboxylic acid,
6,11-dihydro-, radical ion(1+), chloride, 6,11-dihydro-5H-
diindolo[2,3-a:2',3'-c]carbazole-3,8,13-tricarboxylic acid (21:29)
(9CI) (CA INDEX NAME)

CM 1

CRN 418765-07-8

CMF C27 H15 N3 O6

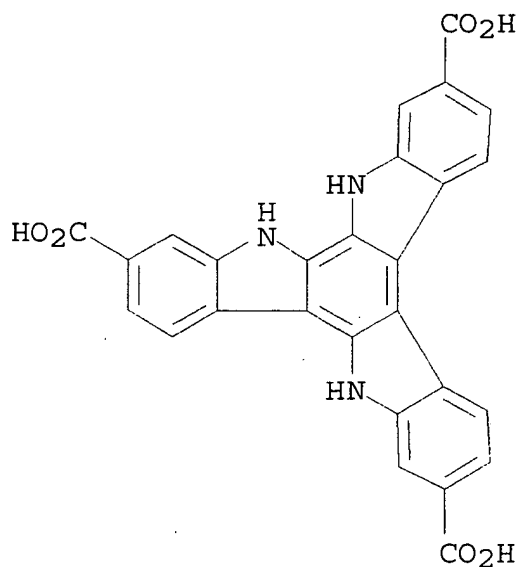


CM 2

CRN 418765-06-7

CMF C27 H15 N3 O6 . Cl .

CCI RIS

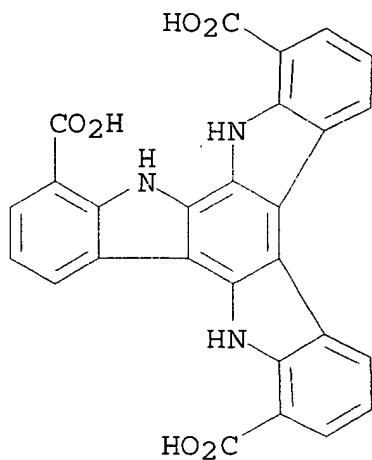


● Cl⁻

RN 418765-11-4 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-4,8,12-tricarboxylic acid,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-4,8,12-
tricarboxylic acid (39:61) (9CI) (CA INDEX NAME)

CM 1 .

CRN 418765-10-3
CMF C27 H15 N3 O6

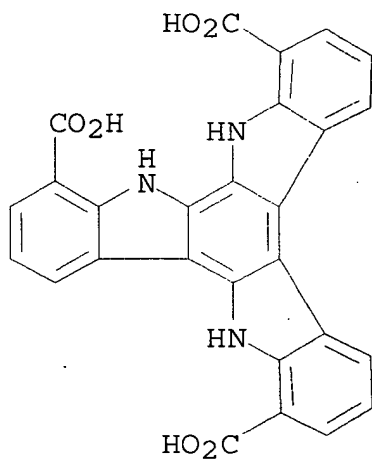


CM 2

CRN 418765-09-0

CMF C27 H15 N3 O6 . Cl

CCI RIS



● Cl -

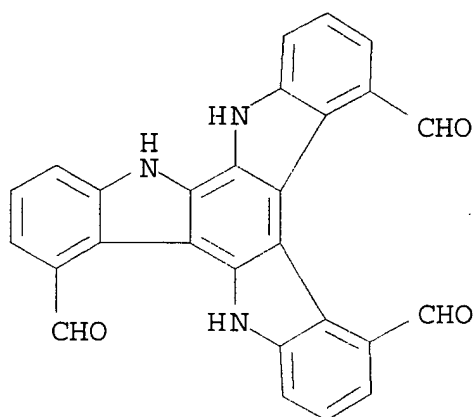
RN 418765-14-7 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-1,10,15-tricarboxaldehyde,
 6,11-dihydro-, radical ion(1+), chloride, compd. with
 6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-1,10,15-
 tricarboxaldehyde (9:11) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-13-6

CMF C27 H15 N3 O3

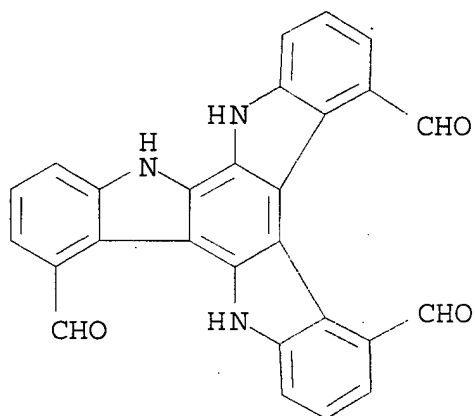


CM 2

CRN 418765-12-5

CMF C27 H15 N3 O3 . Cl

CCI RIS

● Cl⁻

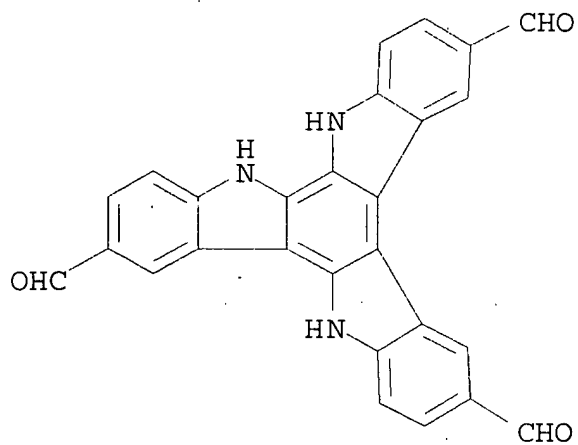
RN 418765-17-0 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarboxaldehyde,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-
tricarboxaldehyde (9:11) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-16-9

CMF C27 H15 N3 O3

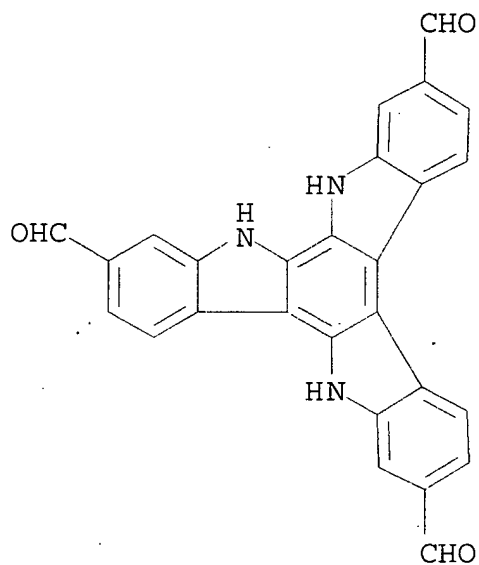


6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-3,8,13-
tricarboxaldehyde (33:67) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-19-2

CMF C27 H15 N3 O3

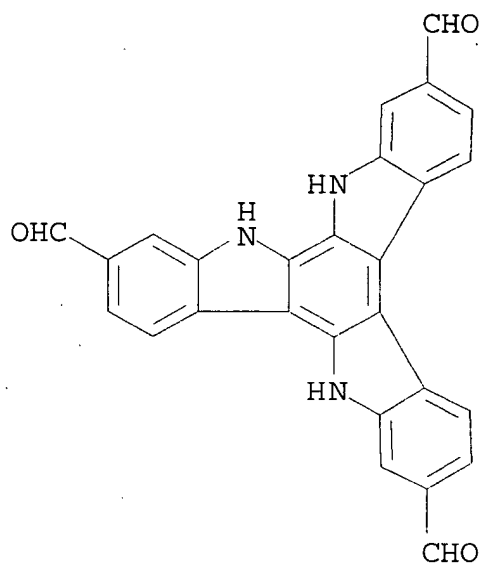


CM 2

CRN 418765-18-1

CMF C27 H15 N3 O3 . Cl

CCI RIS

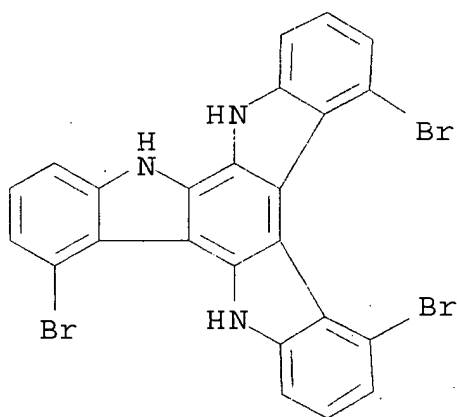


● Cl⁻

RN 418765-23-8 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 1,10,15-tribromo-6,11-dihydro-,
radical ion(1+), chloride, compd. with 1,10,15-tribromo-6,11-dihydro-
5H-diindolo[2,3-a:2',3'-c]carbazole (3:7) (9CI) (CA INDEX NAME)

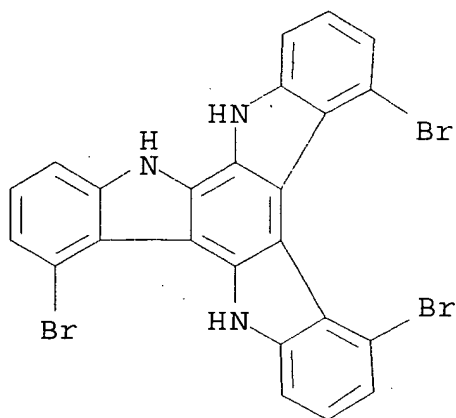
CM 1

CRN 418765-22-7
CMF C24 H12 Br3 N3



CM 2

CRN 418765-21-6
CMF C24 H12 Br3 N3 . Cl
CCI RIS

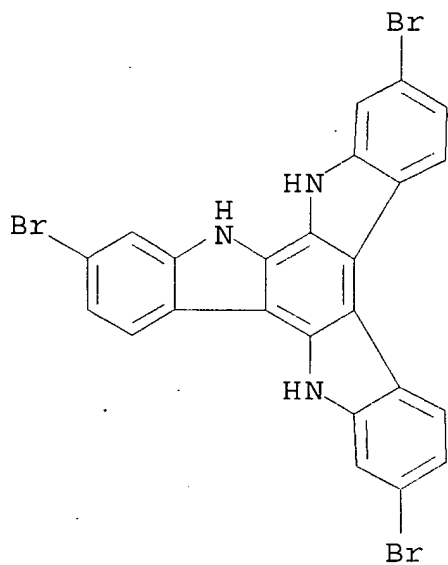


● Cl⁻

RN 418765-26-1 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 3,8,13-tribromo-6,11-dihydro-,
radical ion(1+), chloride, compd. with 3,8,13-tribromo-6,11-dihydro-
5H-diindolo[2,3-a:2',3'-c]carbazole (9:16) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-25-0
CMF C24 H12 Br3 N3

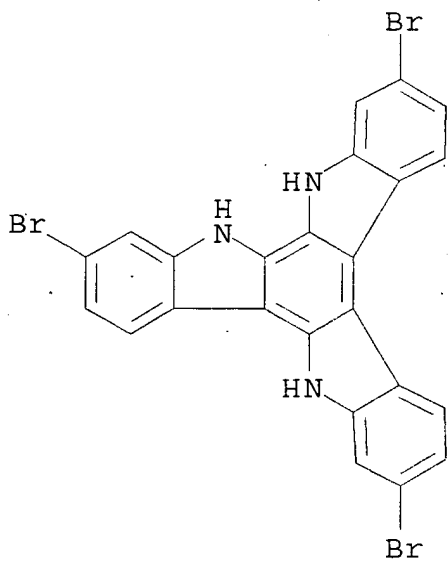


CM 2

CRN 418765-24-9

CMF C24 H12 Br3 N3 . Cl

CCI RIS

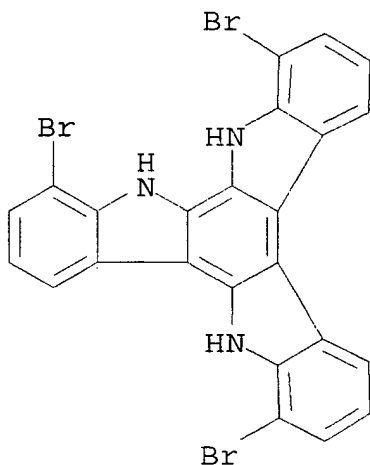
Cl⁻

RN 418765-29-4 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 4,7,12-tribromo-6,11-dihydro-,
radical ion(1+), chloride, compd. with 4,7,12-tribromo-6,11-dihydro-
5H-diindolo[2,3-a:2',3'-c]carbazole (21:29) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-28-3

CMF C24 H12 Br3 N3

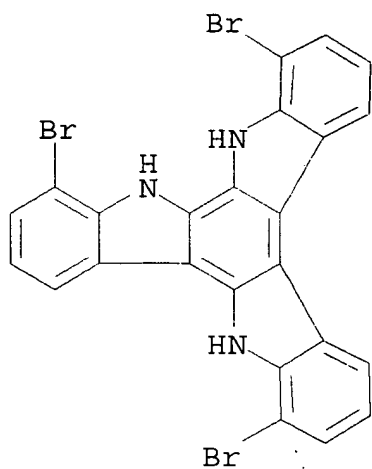


CM 2

CRN 418765-27-2

CMF C24 H12 Br3 N3 . Cl

CCI RIS

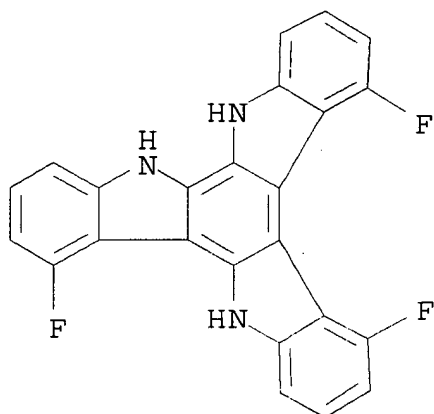


● Cl⁻

RN 418765-32-9 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 1,10,15-trifluoro-6,11-dihydro-, radical ion(1+), chloride, compd. with 1,10,15-trifluoro-6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole (9:16) (9CI) (CA INDEX NAME)

CM 1

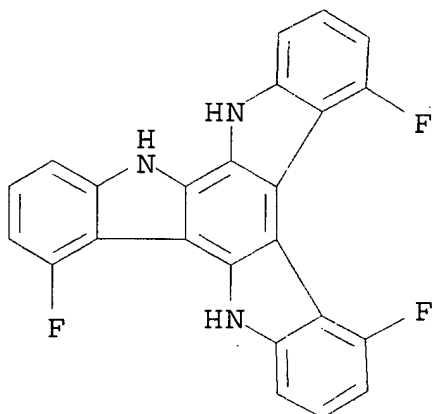
CRN 418765-31-8
CMF C24 H12 F3 N3



CM 2

CRN 418765-30-7

CMF C24 H12 F3 N3 . Cl
CCI RIS

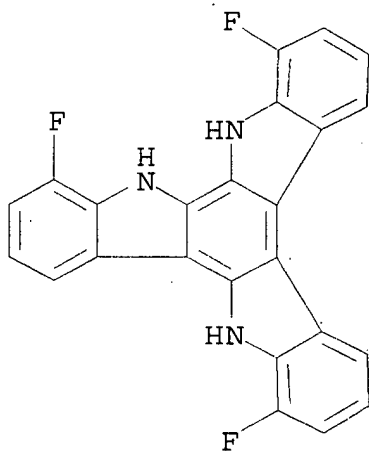


● Cl⁻

RN 418765-35-2 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 4,7,12-trifluoro-6,11-dihydro-,
radical ion(1+), chloride, compd. with 4,7,12-trifluoro-6,11-dihydro-
5H-diindolo[2,3-a:2',3'-c]carbazole (21:29) (9CI) (CA INDEX NAME)

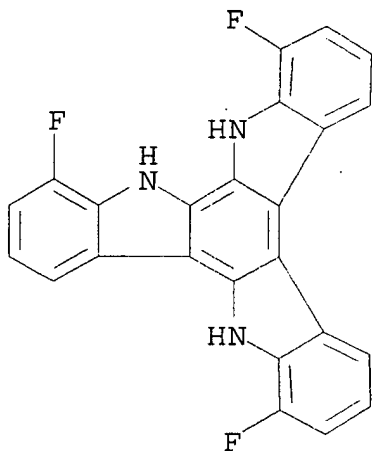
CM 1

CRN 418765-34-1
CMF C24 H12 F3 N3



CM 2

CRN 418765-33-0
CMF C24 H12 F3 N3 . Cl
CCI RIS

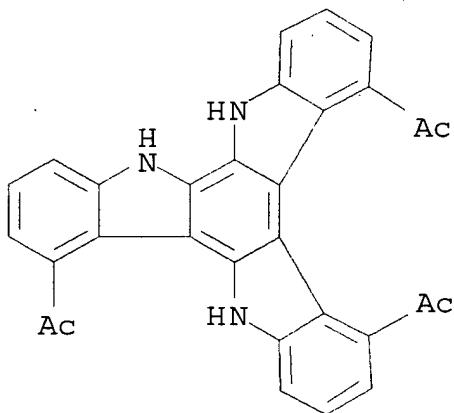


● Cl⁻

RN 418765-38-5 HCA
CN Ethanone, 1,1',1''-(6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-1,10,15-triyl)tris-, radical ion(1+), chloride, compd. with 1,1',1''-(6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-1,10,15-triyl)tris[ethanone] (9:16) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-37-4
CMF C30 H21 N3 O3

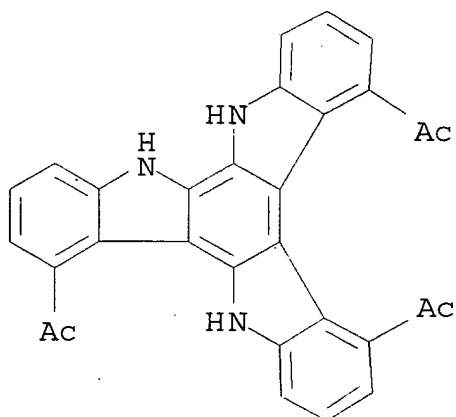


CM 2

CRN 418765-36-3

CMF C30 H21 N3 O3 . Cl

CCI RIS

● Cl⁻

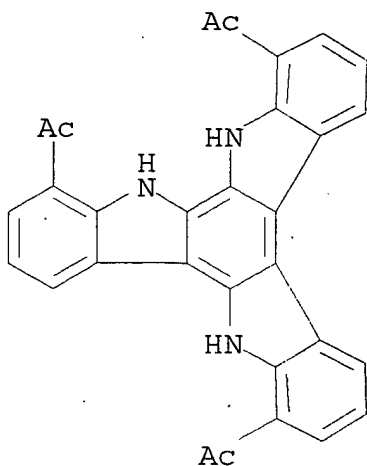
RN 418765-41-0 HCA

CN Ethanone, 1,1',1''-(6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-4,7,12-triyl)tris-, radical ion(1+), chloride, compd. with 1,1',1''-(6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-4,7,12-triyl)tris[ethanone] (39:61) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-40-9

CMF C30 H21 N3 O3

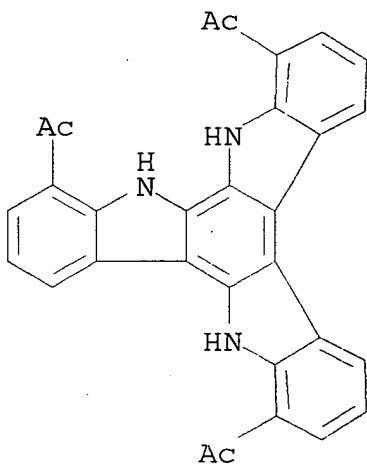


CM 2

CRN 418765-39-6

CMF C30 H21 N3 O3 . Cl

CCI RIS

● Cl⁻

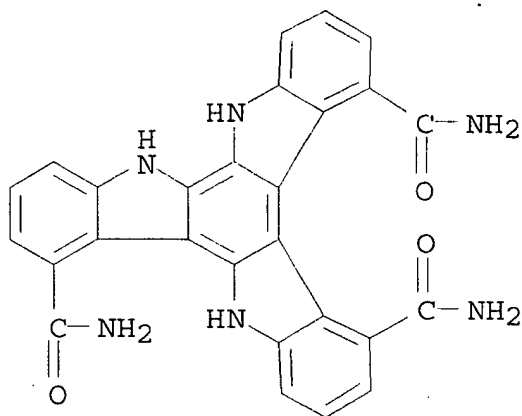
RN 418765-44-3 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-1,10,15-tricarboxamide,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-1,10,15-
tricarboxamide (21:29) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-43-2

CMF C27 H18 N6 O3

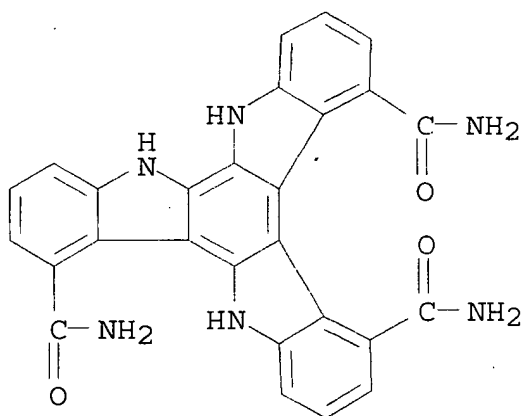


CM 2

CRN 418765-42-1

CMF C27 H18 N6 O3 . Cl

CCI RIS

● Cl⁻

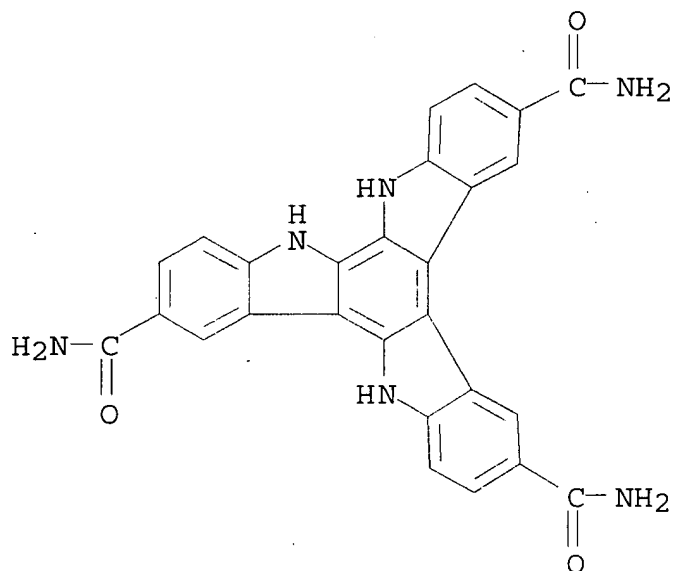
RN 418765-47-6 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarboxamide,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-
tricarboxamide (9:11) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-46-5

CMF C27 H18 N6 O3

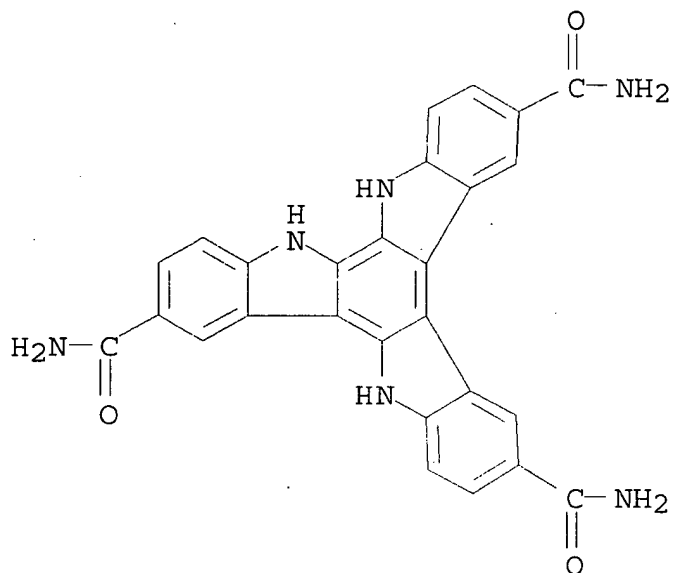


CM 2

CRN 418765-45-4

CMF C27 H18 N6 O3 . Cl

CCI RIS

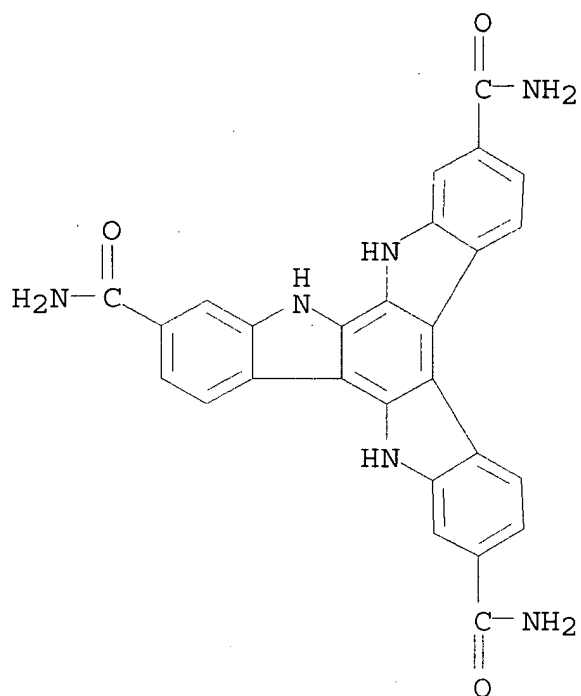


● Cl⁻

RN 418765-50-1 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-3,8,13-tricarboxamide,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-3,8,13-
tricarboxamide (9:16) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-49-8
CMF C27 H18 N6 O3

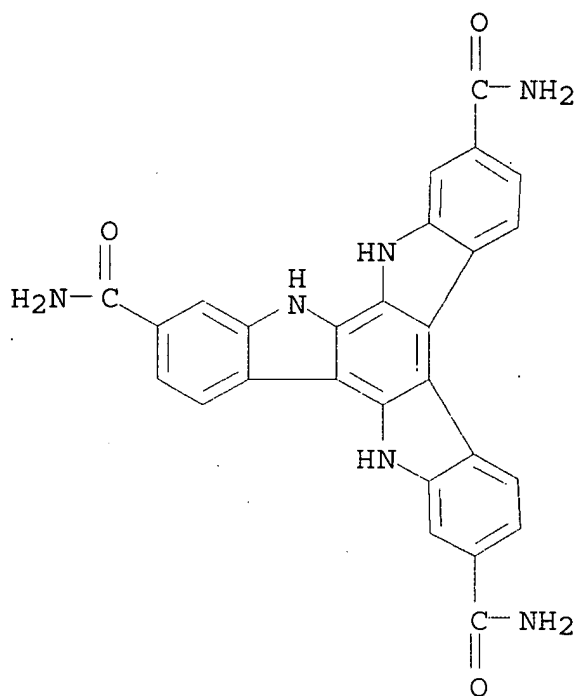


CM 2

CRN 418765-48-7

CMF C27 H18 N6 O3 . Cl

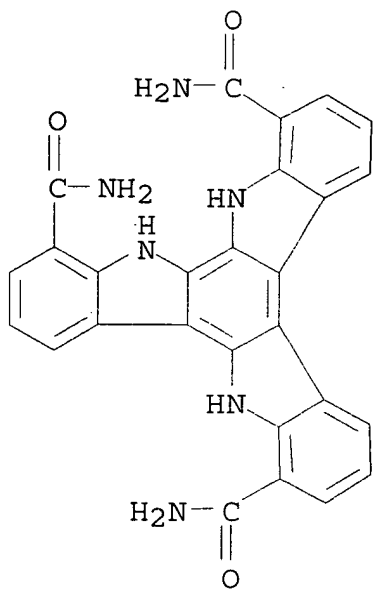
CCI RIS



RN 418765-53-4 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-4,7,12-tricarboxamide,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-4,7,12-
tricarboxamide (39:61) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-52-3
CMF C27 H18 N6 O3

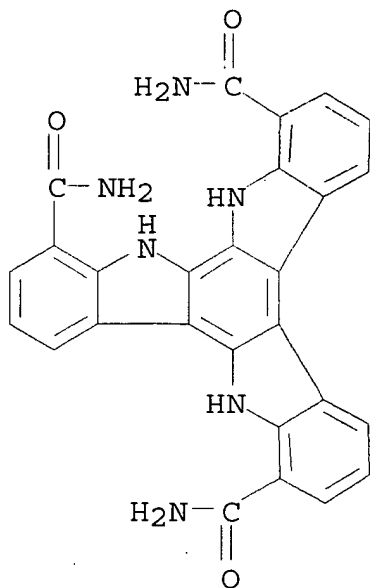


CM 2

CRN 418765-51-2

CMF C27 H18 N6 O3 . Cl

CCI RIS

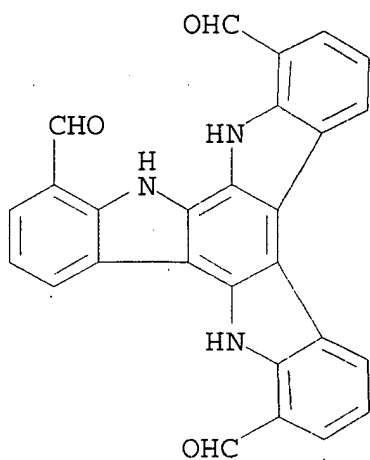


● Cl⁻

RN 418765-56-7 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-4,7,12-tricarboxaldehyde,
6,11-dihydro-, radical ion(1+), chloride, salt with
4-methylbenzenesulfonic acid, compd. with 6,11-dihydro-5H-
diindolo[2,3-a:2',3'-c]carbazole-4,7,12-tricarboxaldehyde
(33:3:30:67) (9CI) (CA INDEX NAME)

CM 1

CRN 418764-89-3
CMF C27 H15 N3 O3



CM 2

CRN 418765-55-6

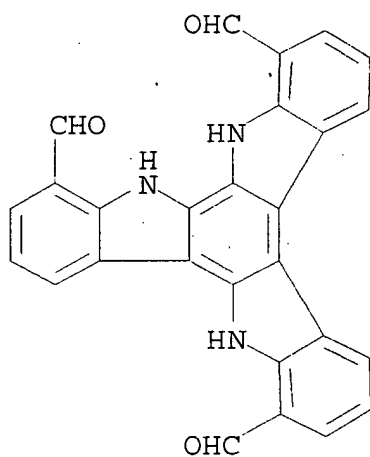
CMF C27 H15 N3 O3 . 10/11 C7 H7 O3 S . 1/11 Cl

CM 3

CRN 418765-54-5

CMF C27 H15 N3 O3

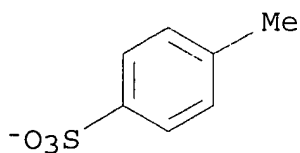
CCI RIS



CM 4

CRN 16722-51-3

CMF C7 H7 O3 S

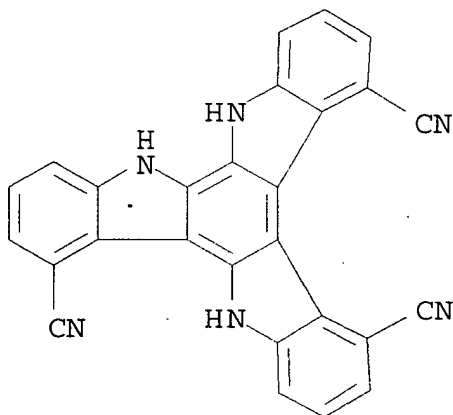


RN 418765-59-0 HCA
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-1,10,15-tricarbonitrile,
6,11-dihydro-, radical ion(1+), chloride, compd. with
6,11-dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-1,10,15-
tricarbonitrile (3:7) (9CI) (CA INDEX NAME)

CM 1

CRN 418765-58-9

CMF C27 H12 N6

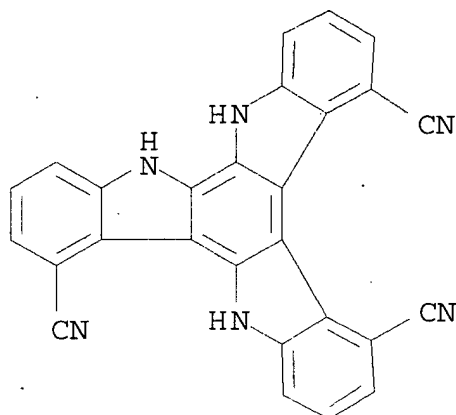


CM 2

CRN 418765-57-8

CMF C27 H12 N6 . Cl

CCI RIS



● Cl⁻

IC ICM C07D487-14
CC 28-2 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 22, 72, 76
IT 417708-84-0P 417708-86-2P 417708-88-4P
417708-90-8P 417708-93-1P 417708-94-2P
417708-95-3P 418764-77-9P 418764-80-4P
418764-84-8P 418764-87-1P 418764-90-6P
418764-93-9DP, reaction product with polyvinylsulfonic acid
418764-93-9P 418764-96-2P 418764-99-5P
418765-02-3P 418765-05-6P 418765-08-9P
418765-11-4P 418765-14-7P 418765-17-0P
418765-20-5P 418765-23-8P 418765-26-1P
418765-29-4P 418765-32-9P 418765-35-2P
418765-38-5P 418765-41-0P 418765-44-3P
418765-47-6P 418765-50-1P 418765-53-4P
418765-56-7P 418765-59-0P

(prepn. of trimers of indole derivs. (5H-diindolo[2,3-a;2',3'-c]carbazole derivs.) with high redox potentials by oxidative cyclotrimerization of indole derivs. in presence of oxidizing agents and laminated structure thereof)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 4 OF 5 HCA COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 136:234747 HCA

TITLE: Secondary battery and

capacitor utilizing indole compounds

INVENTOR(S):

Kurosaki, Masato; Nishiyama, Toshihiko;
Kamitsuki, Hiroyuki; Harada, Gaku; Nakagawa,
Yuuji; Yoshida, Shinya; Nobuta, Tomoki; Mitani,

PATENT ASSIGNEE(S): Masaya
SOURCE: NEC Corp., Japan
Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

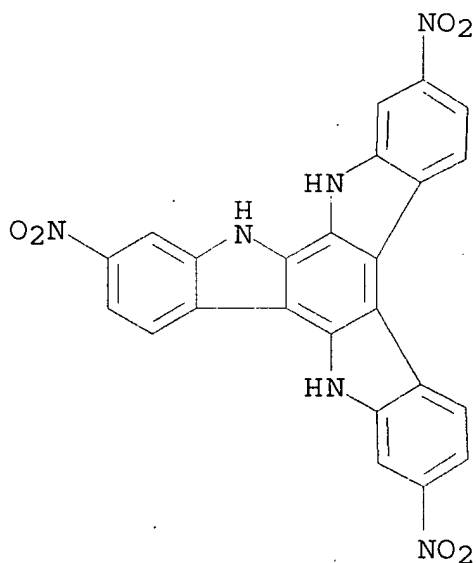
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1189295	A2	20020320	EP 2001-121270	20010905
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002093419	A2	20020329	JP 2000-282309	20000918
US 2002058185	A1	20020516	US 2001-942991	20010831
PRIORITY APPLN. INFO.:			JP 2000-282309 A	20000918

AB The present invention provides a secondary **battery** and a **capacitor** which may provide an excellent high rate and cycle characteristic as well as sufficient emf. and capacity. The secondary **battery** and a **capacitor** have an active material of an electrode comprising a trimer compd. comprising three units of indole or indole derivs. in condensed ring form, wherein the second position and the third position of each unit form a six-membered ring, and a proton which can be utilized as a charge carrier of the trimer compd.

IT **403694-95-1**
(secondary **battery** and **capacitor** utilizing indole compds.)

RN 403694-95-1 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro-3,8,13-trinitro-(9CI) (CA INDEX NAME)



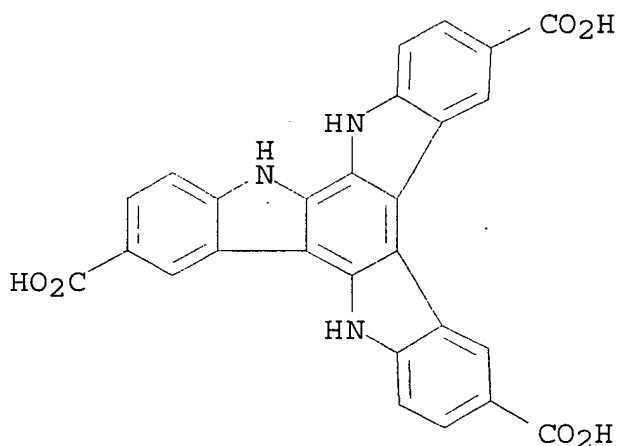
IC ICM H01M004-02
ICS H01M004-60; H01G009-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76
ST **battery capacitor** indole compd utilization
IT **Battery** anodes
 Battery cathodes
 Capacitors
 Secondary **batteries**
 (secondary **battery** and **capacitor** utilizing
 indole compds.)
IT Carbon black, uses
Carbon fibers, uses
 (secondary **battery** and **capacitor** utilizing
 indole compds.)
IT 108-32-7, Propylene carbonate 429-06-1, Tetraethylammonium
tetrafluoroborate 1493-13-6, Triflic acid 52232-62-9
220310-61-2, 5-Cyanoindole trimer **403694-95-1**
 (secondary **battery** and **capacitor** utilizing
 indole compds.)
IT 120-72-9, Indole, uses
 (secondary **battery** and **capacitor** utilizing
 indole compds.)

L16 ANSWER 5 OF 5 HCA COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 132:85068 HCA
TITLE: The redox reaction and induced structural
changes of 5-substituted indole films
AUTHOR(S): Mount, Andrew R.; Robertson, Mark T.
CORPORATE SOURCE: Department of Chemistry, The University of
Edinburgh, Edinburgh, EH9 3JJ, UK
SOURCE: Physical Chemistry Chemical Physics (1999),
1(22), 5169-5177
CODEN: PPCPFQ; ISSN: 1463-9076
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English

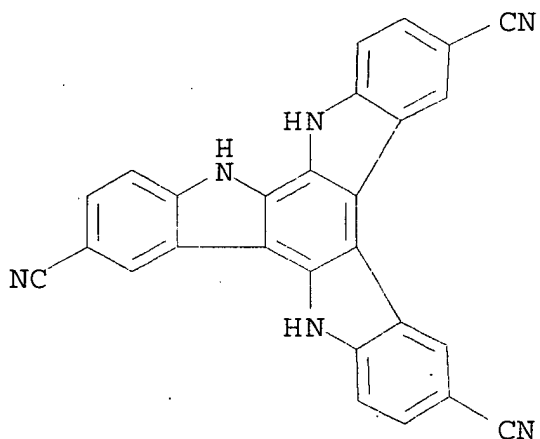
AB The electrochem. behavior of 2 types of electrodeposited redox
active indole trimer films, 5-cyanoindole (CI) and
indole-5-carboxylic acid (ICA), were studied in acetonitrile
electrolyte systems. Chronoamperometry, cyclic voltammetry, and
transmission line anal. of a.c. impedance data were used to monitor
the kinetics and mechanism of the electron transfer process with
prolonged redox cycling. As-deposited films of CI and ICA each show
high electronic conduction, consistent with the films behaving as a
porous metal. CI films show a relatively large, potential dependent
barrier to ion insertion, consistent with a compact, poorly solvated
structure. In contrast, ICA films display a higher film
capacitance and a lower barrier to ion insertion, indicating
a more open and solvated film. On prolonged slow redox cycling over
several days, CI shows little change in coat structure, whereas ICA

shows a marked change in its redox reaction, consistent with a change in the mechanism of electron transfer to redox hopping, in the mechanism of ion transfer to cation insertion. This can be explained by the irreversible deprotonation of a carboxylic acid substituent on the trimer center during oxidn., which induces a change in redox mechanism and film structure. Transmission line anal. of small amplitude ac impedance data is shown to be an excellent method for monitoring this and other such changes in modified electrode systems.

IT 158613-71-9 164671-61-8
 (redox reaction and induced structural changes of 5-substituted indole films)
 RN 158613-71-9 HCA
 CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarboxylic acid, 6,11-dihydro- (9CI) (CA INDEX NAME)



RN 164671-61-8 HCA
 CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarbonitrile, 6,11-dihydro- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)
Section cross-reference(s): 27

IT 158613-71-9 164671-61-8
(redox reaction and induced structural changes of 5-substituted indole films)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

=> d l17 1-17 ti

L17 ANSWER 1 OF 17 HCA COPYRIGHT 2003 ACS on STN

TI Manufacture of indole derivative trimer compound conductive materials

L17 ANSWER 2 OF 17 HCA COPYRIGHT 2003 ACS on STN

TI Electrically conductive compositions, conductors with transparent conductive films of the compositions, and their formation

L17 ANSWER 3 OF 17 HCA COPYRIGHT 2003 ACS on STN

TI Corrosion inhibitor comprising indole derivative trimer

L17 ANSWER 4 OF 17 HCA COPYRIGHT 2003 ACS on STN

TI Oxidative trimerization of indole: on the formation of dications and radical cations by reaction of indole and nitrosobenzene in the presence of acids

L17 ANSWER 5 OF 17 HCA COPYRIGHT 2003 ACS on STN

TI In situ spectroelectrochemical studies of the fluorescence of 5-substituted indole trimer films

L17 ANSWER 6 OF 17 HCA COPYRIGHT 2003 ACS on STN

TI Acid-Promoted Competing Pathways in the Oxidative Polymerization of 5,6-Dihydroxyindoles and Related Compounds: Straightforward Cyclotrimerization Routes to Diindolocarbazole Derivatives

L17 ANSWER 7 OF 17 HCA COPYRIGHT 2003 ACS on STN

TI Electrooxidation of N-methylindole

L17 ANSWER 8 OF 17 HCA COPYRIGHT 2003 ACS on STN

TI Electrooxidation of 5-substituted indoles

L17 ANSWER 9 OF 17 HCA COPYRIGHT 2003 ACS on STN

TI The synthesis and structural characterization of a charge transfer complex of iodine and indole trimer

L17 ANSWER 10 OF 17 HCA COPYRIGHT 2003 ACS on STN

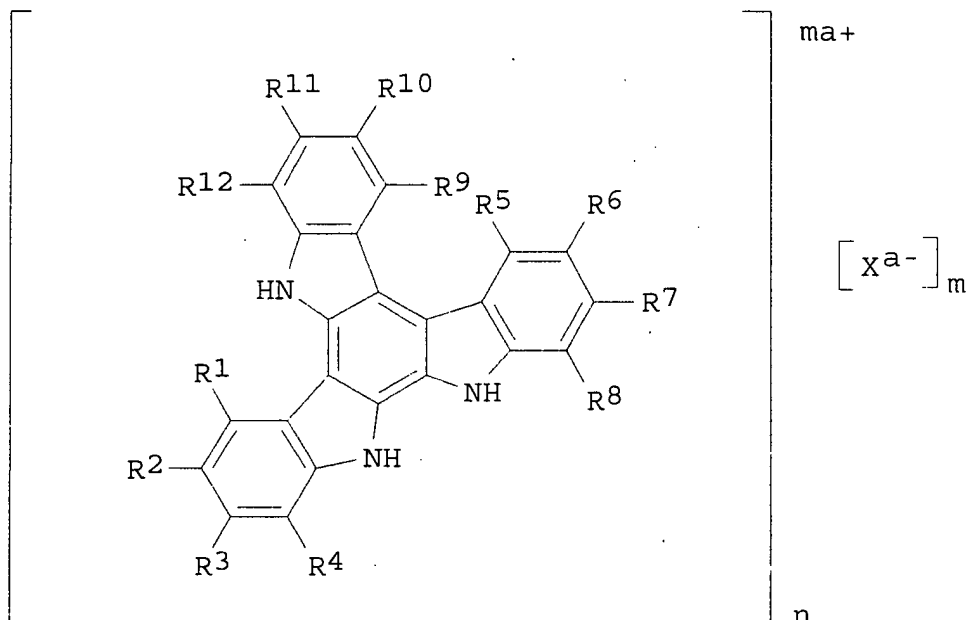
TI Nitrenium ions. Part 2. Acid-catalyzed reactions of indole with nitrosobenzenes. Crystal structure of 2-(indol-3-yl)-3-phenylimino-3H-indole

- L17 ANSWER 11 OF 17 HCA COPYRIGHT 2003 ACS on STN
TI The electropolymerization and characterization of 5-cyanoindole
- L17 ANSWER 12 OF 17 HCA COPYRIGHT 2003 ACS on STN
TI Characterization of the unsymmetrical trimer of indole-5-carboxylic acid by proton NMR spectroscopy
- L17 ANSWER 13 OF 17 HCA COPYRIGHT 2003 ACS on STN
TI Determination of the structure of electropolymerized indole-5-carboxylic acid
- L17 ANSWER 14 OF 17 HCA COPYRIGHT 2003 ACS on STN
TI Structure elucidation of some compounds obtained by interaction of indigo with hydrazine
- L17 ANSWER 15 OF 17 HCA COPYRIGHT 2003 ACS on STN
TI Reactions of indole with hydroxyl radicals and x-ray crystal structure of a novel indole trimer, 14-acetyldiindolo[2,3-a:2',3'-c]carbazole
- L17 ANSWER 16 OF 17 HCA COPYRIGHT 2003 ACS on STN
TI Synthesis and studies of tris-indolobenzenes and related compounds
- L17 ANSWER 17 OF 17 HCA COPYRIGHT 2003 ACS on STN
TI A novel indole trimer; diindolo[2,3-a:2',3'-c]carbazole

=> d l17 1,2,9 cbib abs hitstr hitrn

- L17 ANSWER 1 OF 17 HCA COPYRIGHT 2003 ACS on STN
139:93577 Manufacture of indole derivative trimer compound conductive materials. Maeda, Shinichi; Saito, Yoshikazu; Saito, Takashi (Mitsubishi Rayon Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003187652 A2 (20030704, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-390256 20011221.

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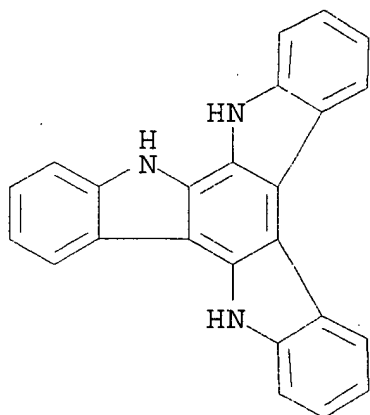
AB The title manuf. of conductive materials involves mixing (1) indole deriv. trimer compds. (I: R1-11 = H, C1-24 n-/p-alkyl, C1-24 n-/p-alkoxy, C2-24 n-/p-acyl, aldehyde, carboxyl, C2-24 carboxy ester, sulfonyl, C1-24 n-/p-sulfonyl esters, cyano, hydroxyl, nitro, amino, amide, halo, cyanovinyl; Xa- = dopant; m = 0-1 as doped ratio; a = no. of ionization valent for X;), (2) a conductive promotor, and (3) a binder in a solvent which has the trimer compd. soly. 0-3 wt.%. The conductor materials have high elec. cond. and excellent moldability, suitable for wide variety of application and uses.

IT 70381-95-2P, 6,11-Dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole 158613-71-9P 164671-61-8P, 6,11-Dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarbonitrile 403694-95-1P 418764-79-1P 418765-46-5P

(indole derivs. trimer; manuf. of indole deriv. trimer compd. conductive materials)

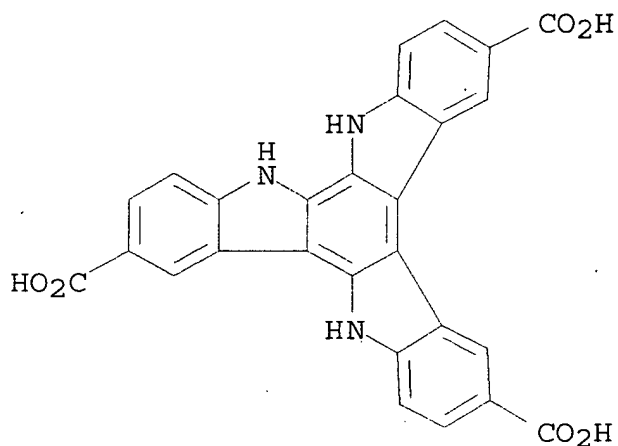
RN 70381-95-2 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro- (9CI) (CA INDEX NAME)



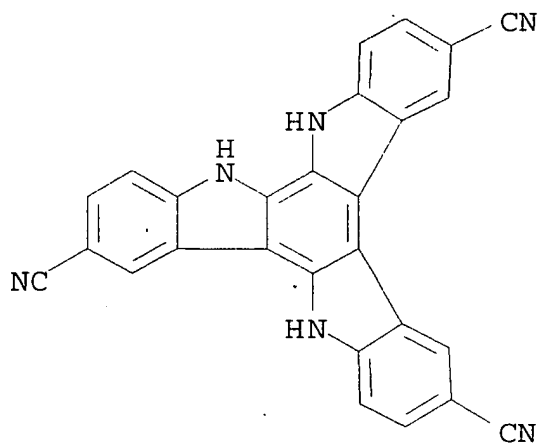
RN 158613-71-9 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarboxylic acid,
6,11-dihydro- (9CI) (CA INDEX NAME)

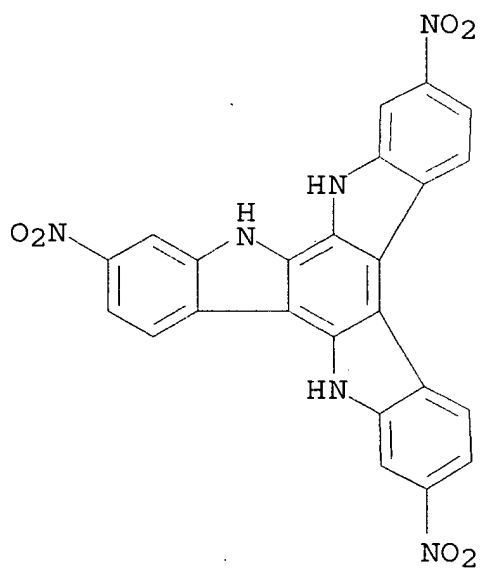


RN 164671-61-8 HCA

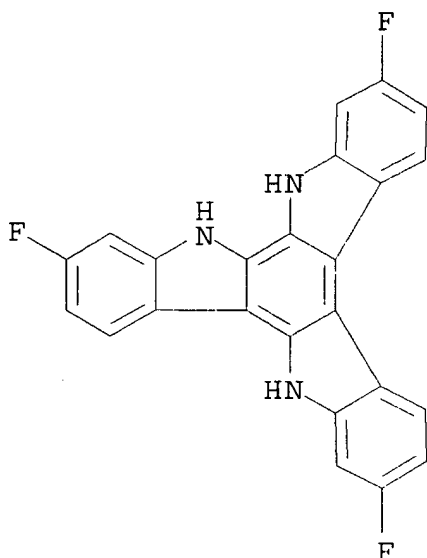
CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarbonitrile,
6,11-dihydro- (9CI) (CA INDEX NAME)



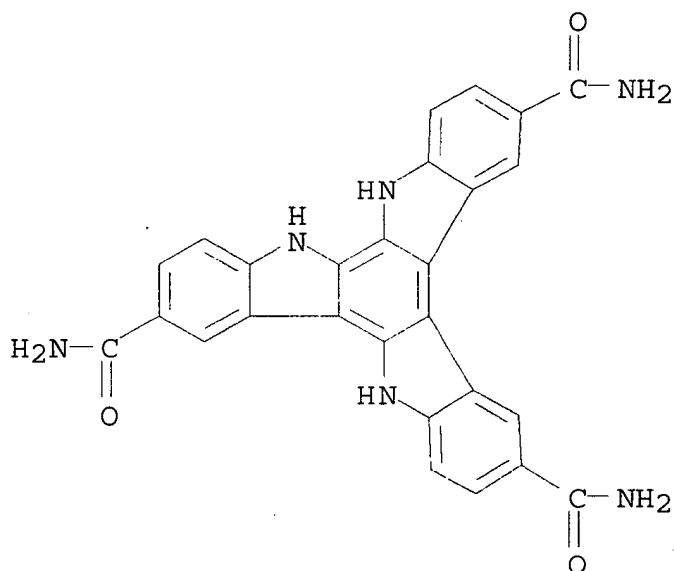
RN	403694-95-1	HCA
CN	5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro-3,8,13-trinitro-(9CI) (CA INDEX NAME)	



RN	418764-79-1	HCA
CN	5H-Diindolo[2,3-a:2',3'-c]carbazole, 3,8,13-trifluoro-6,11-dihydro- (9CI) (CA INDEX NAME)	



RN 418765-46-5 HCA
 CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarboxamide,
 6,11-dihydro- (9CI) (CA INDEX NAME)

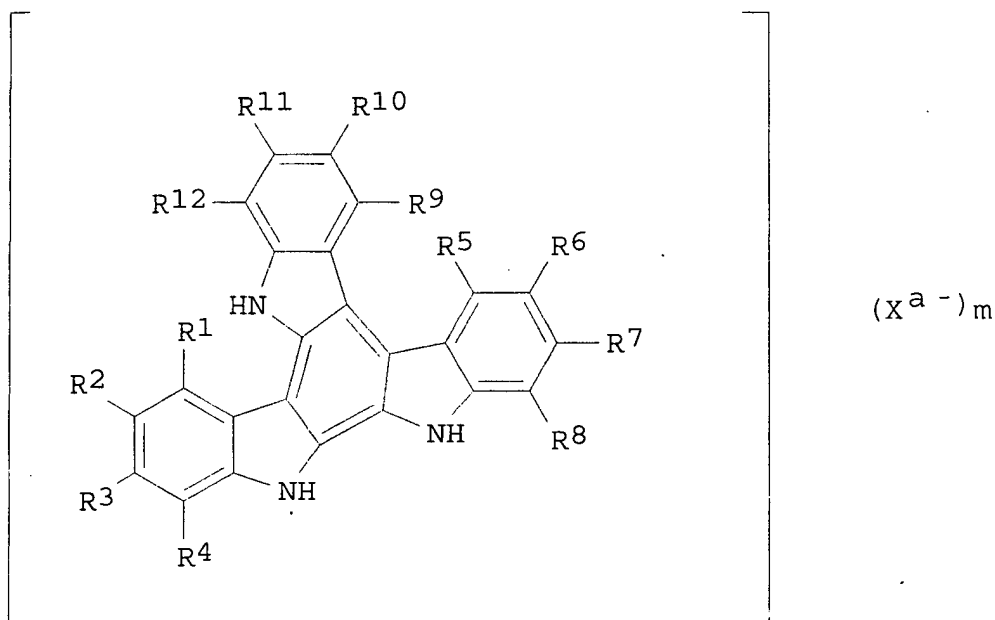


IT 70381-95-2P, 6,11-Dihydro-5H-diindolo[2,3-a:2',3'-
 c]carbazole 158613-71-9P 164671-61-8P,
 6,11-Dihydro-5H-diindolo[2,3-a:2',3'-c]carbazole-2,9,14-
 tricarbonitrile 403694-95-1P 418764-79-1P
 418765-46-5P
 (indole derivs. trimer; manif. of indole deriv. trimer compd.
 conductive materials)

L17 ANSWER 2 OF 17 HCA COPYRIGHT 2003 ACS on STN

138:347327 Electrically conductive compositions, conductors with transparent conductive films of the compositions, and their formation. Saito, Takashi; Maeda, Shinichi; Saito, Yoshikazu (Mitsubishi Rayon Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003123532 A2 20030425, 20 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-316936 20011015.

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I

AB The comps. contain (A) indole derivs. trimers, (B) solvents, (C) crosslinking agents which may be (D) silane coupling agents represented by general formula $\text{YXSiR}_{48}\text{R}_{49}\text{R}_{50}$ [R_{48} - R_{50} = H, C1-6 alkyl, C1-6 alkoxy, amino, acetyl, Ph, halo; X = $(\text{CH}_2)_n$, $(\text{CH}_2)_n\text{O}(\text{CH}_2)_l$; n, l = 1-6; Y = OH, SH, amino, epoxy, epoxycyclohexyl], and optionally (C) colloidal SiO_2 , (F) bases, (G) macromols., (H) surfactants, and (I) inorg. salts. Preferably, the indole derivs. trimers comprise I [R_1 - R_{12} = H, C1-24 alkyl, C2-24 alkoxy, C2-24 acyl, aldehyde, CO_2H , C1-24 sulfonate, cyano, OH, NO_2 , amino, amide, halo; X^{a-} = .gtoreq.1 of 1-3-valent anion of Cl, Br, I, F, H_2SO_4 , hydrogensulfate, H_3PO_4 , B fluoride, perchloric acid, thiocyanic acid, AcOH, propionic acid, methanesulfonic acid, p-toluenesulfonic acid, trifluoroacetic acid, and trifluoromethanesulfonic acid ion; a = 1-3 integer; m (dopant ratio) = 0-0.5]. Preferably, the indole derivs. trimers are prepd. by reacting indole derivs. with oxidizing agents in solvents. The elec. conductors are obtained by applying the elec. conductive comps. on .gtoreq.1 side of a substrate to provide transparent

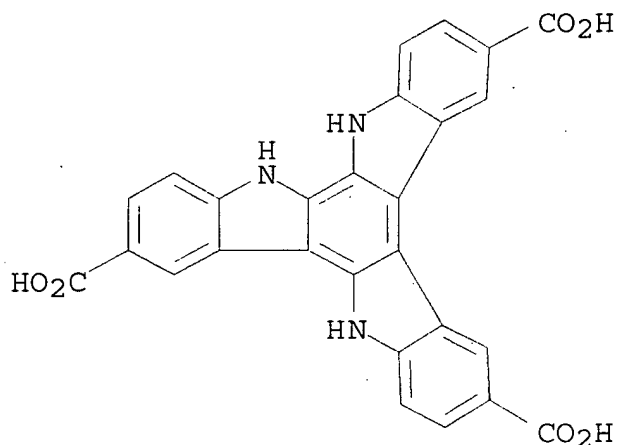
elec. conductive layer(s), (doping with acids,) and leaving at ambient temp. or subjecting to thermal treatment. The compns. have high elec. cond. free from moisture dependency, good film forming property, moldability, transparency, resistances to solvents and water, high hardness, and weather resistance.

IT 158613-71-9P 164671-61-8P 514225-85-5P

(elec. conductive compns. contg. indole derivs. trimers for transparent conductive films)

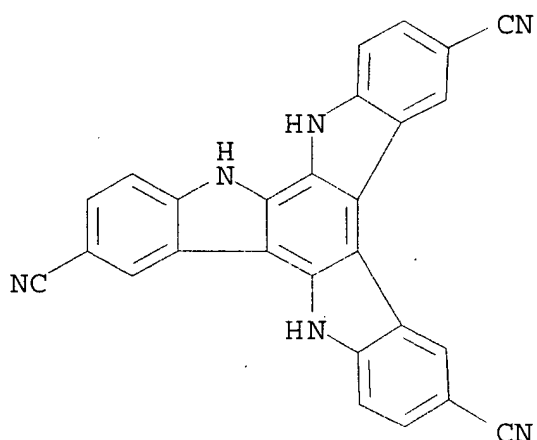
RN 158613-71-9 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarboxylic acid, 6,11-dihydro- (9CI) (CA INDEX NAME)



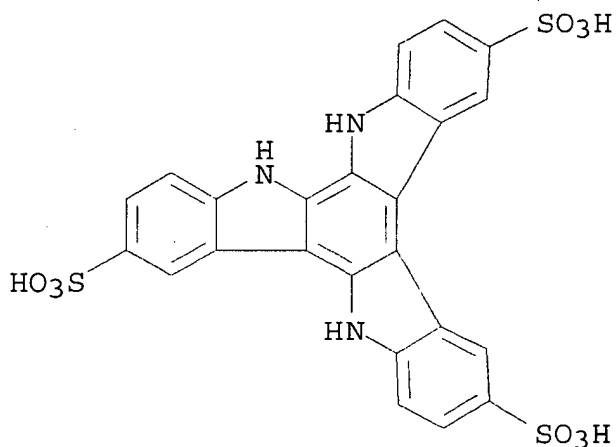
RN 164671-61-8 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-tricarbonitrile, 6,11-dihydro- (9CI) (CA INDEX NAME)



RN 514225-85-5 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole-2,9,14-trisulfonic acid, 6,11-dihydro- (9CI) (CA INDEX NAME)



IT 158613-71-9P 164671-61-8P 514225-85-5P.

(elec. conductive comps. contg. indole derivs. trimers for transparent conductive films)

L17 ANSWER 9 OF 17 HCA COPYRIGHT 2003 ACS on STN

125:287245 The synthesis and structural characterization of a charge transfer complex of iodine and indole trimer. Bocchi, Vittorio; Colombo, Arturo; Porzio, William (Dipartimento di Chimica Organica e Industriale, Universita di Parma, Parma, 43100, Italy). Synthetic Metals, 80(3), 309-313 (English) 1996. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier.

AB Indole electrooxidn. using iodine as a supporting electrolyte yields sheaves of very thin black needles identified as a charge transfer complex of iodine and an indole trimer. X-ray diffraction studies on this material allows one univocally to propose a reliable crystal model in which a disorder involving both I₃⁻ residues and org. mols. is evidenced. The structure consists of stacked mols. of indole trimers (cations) and columns of iodines (anions).

IT 183004-21-9P

(electrosynthesis)

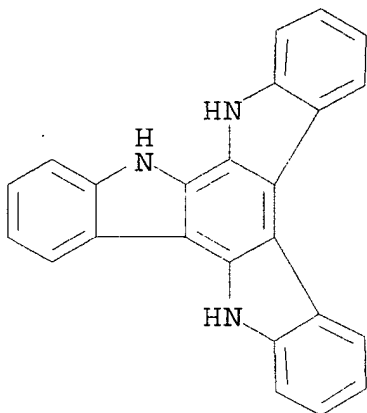
RN 183004-21-9 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro-, compd. with iodine (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 70381-95-2

CMF C24 H15 N3



CM 2

CRN 7553-56-2

CMF 12

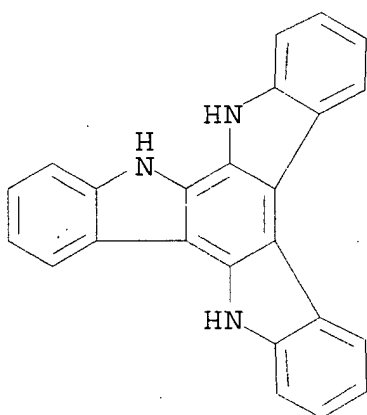
I-I

IT 70381-95-2P

(electrosynthesis of indole trimer by electrooxidn. of indole with iodine)

RN 70381-95-2 HCA

CN 5H-Diindolo[2,3-a:2',3'-c]carbazole, 6,11-dihydro- (9CI) (CA INDEX NAME)



IT 183004-21-9P

(electrosynthesis)

IT 70381-95-2P

(electrosynthesis of indole trimer by electrooxidn. of indole with iodine)

Weiner 09/942,991

Page 70